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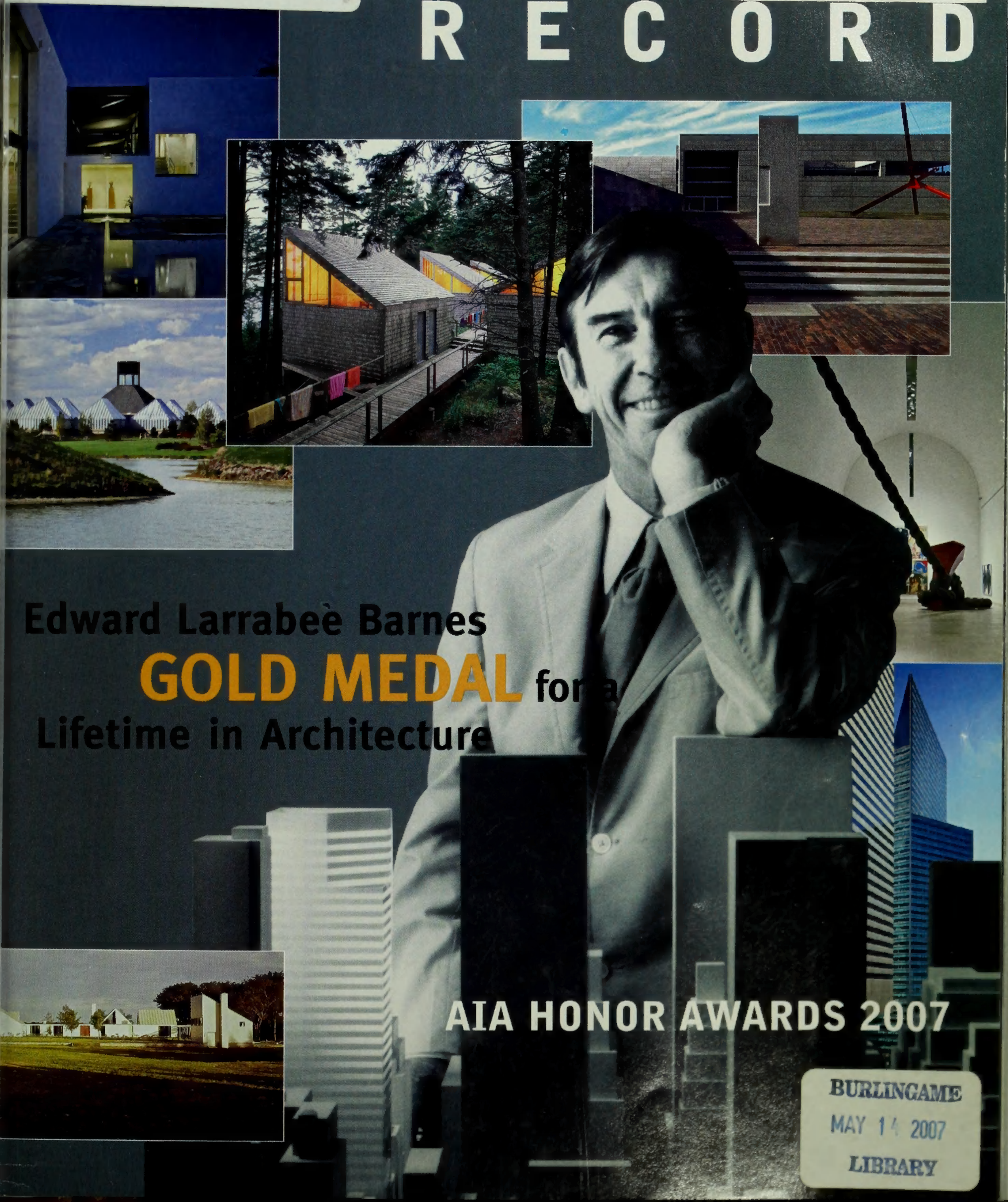

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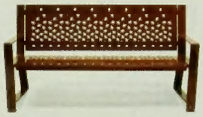

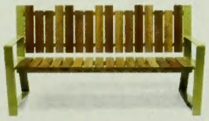

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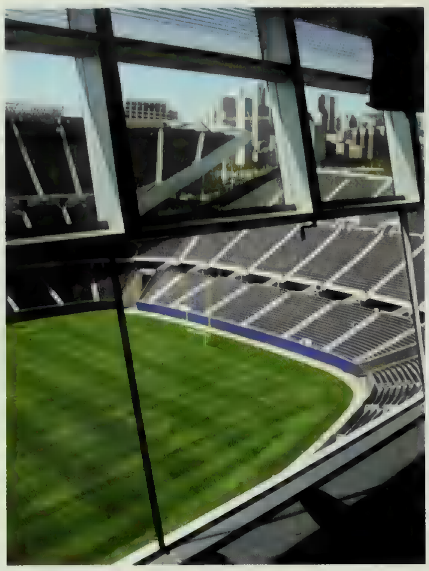

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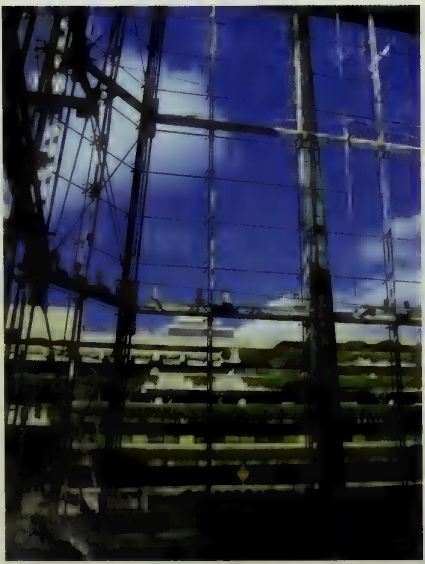

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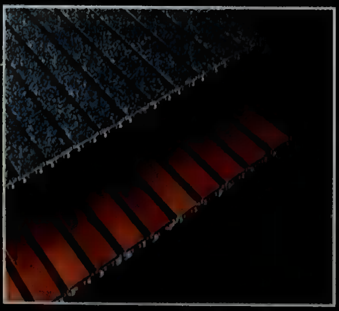

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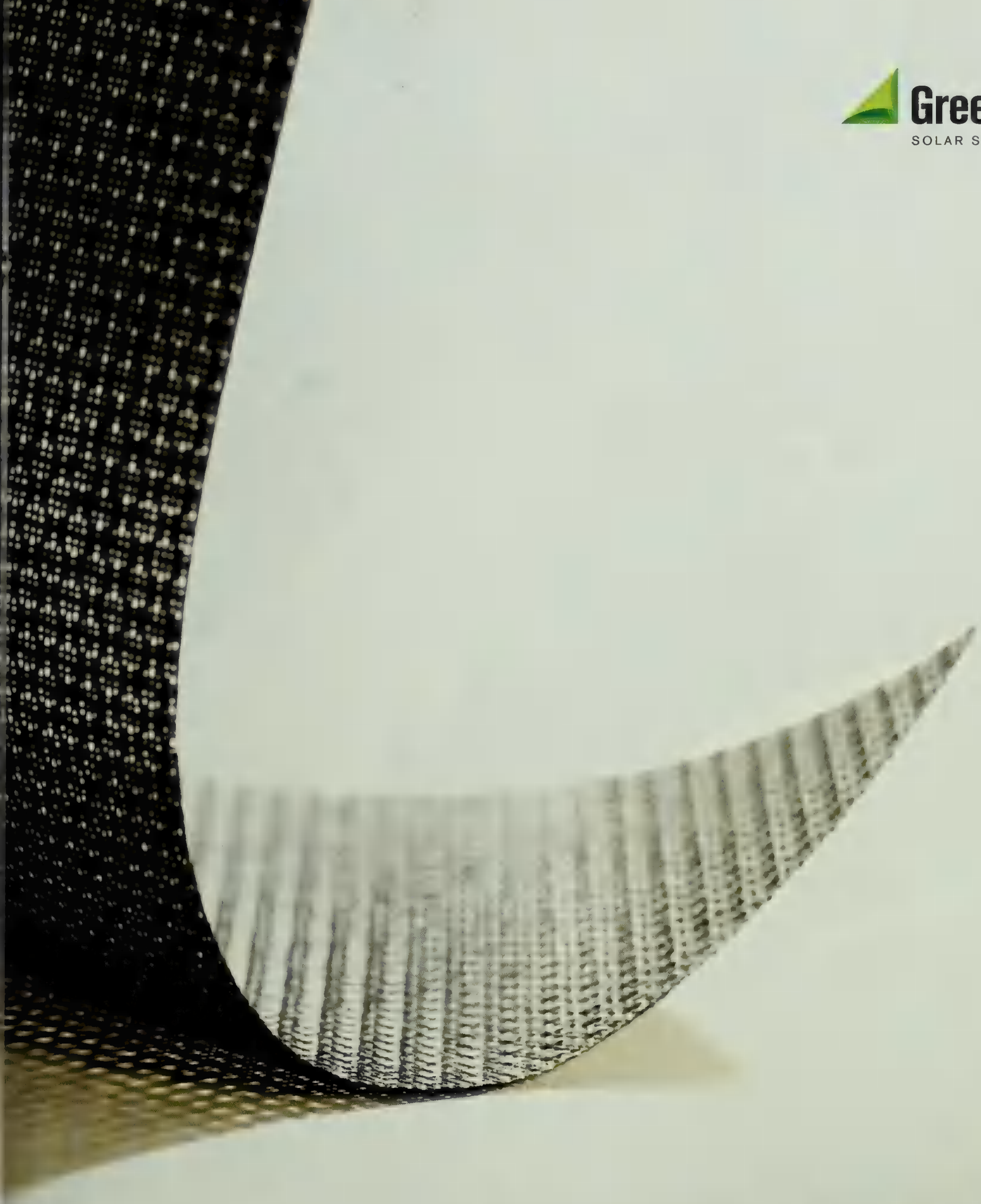

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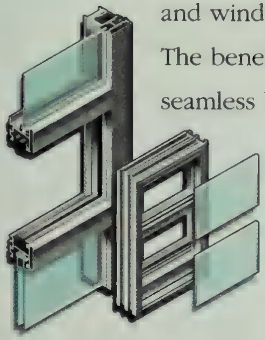

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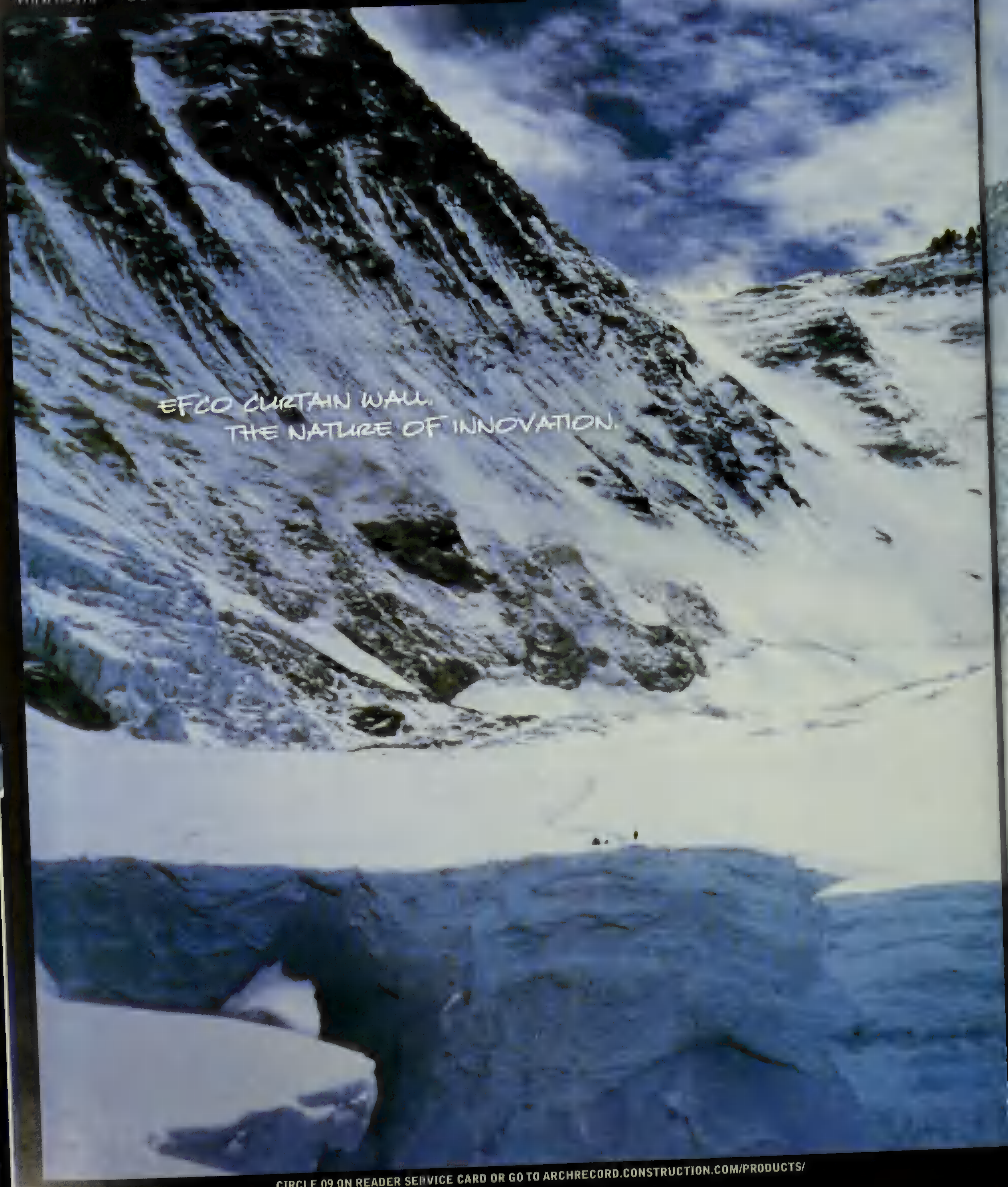

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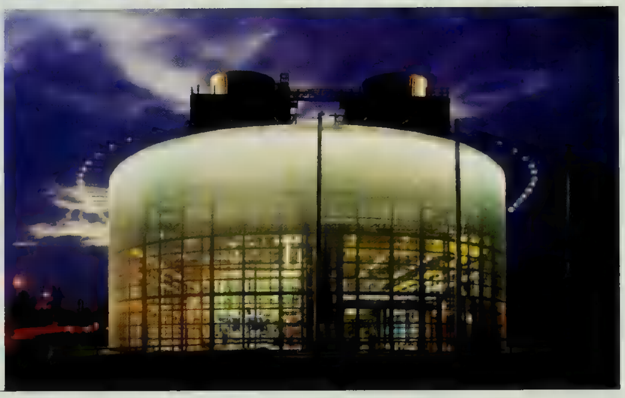

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Expanded coverage of Projects, Building Types Studies, and Web-only special features can be found at ***architecturalrecord.com***.

05.2007

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Clockwise from top right: *156 West Superior Residences by Miller/Hull Architects, photograph by Nic Lehoux. The Clinic nightclub by Concrete and avoKinetix, photograph by Sash Alexander for Concrete Architectural Associates. Southern Cross Station by Grimshaw Architects, photograph courtesy Southern Cross Station Authority.*

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Learn & Earn

Architectural Record Continuing Education

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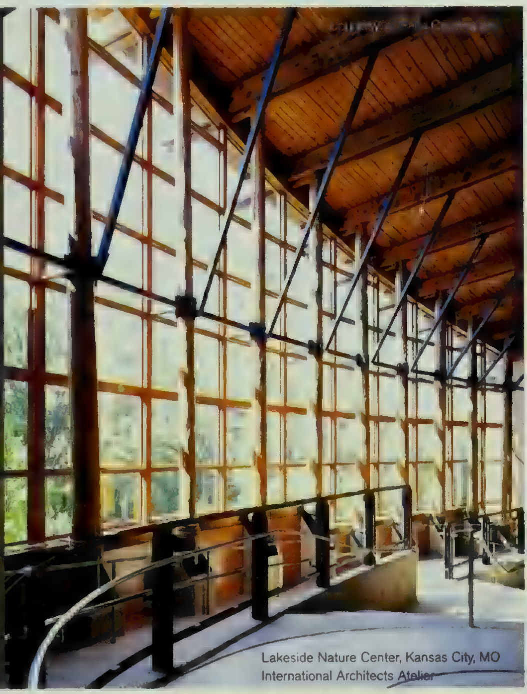
Windows and Sustainability: An Environmental Perspective

Windows and doors can contribute to green design and LEED® credits

Written by Barbara A. Nadel, FAIA
Provided by

Pella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Lakeside Nature Center, Kansas City, MO
International Architects Atelier

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Acrylic Foam Structural Glazing Tape: A New Bonding Alternative

A durable, high-performance glazing option for curtain wall construction

Written by Karin Tetlow
Provided by

3M

Courtesy of 3M

Liberty Memorial Museum, Kansas City, MO.
Architect: ASAI Architecture, 2006.

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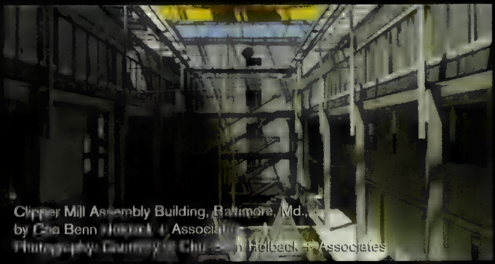
Chesapeake Boathouse, Oklahoma City,
by Elliott + Associates Architects
Photography: © Robert Shimer @ Hedrich Blessing

Projects

An art center off the coast of Portugal, a university lab building in Tucson, Arizona, a boathouse in Oklahoma City, and a museum in Suzhou, China. Four stellar projects demonstrate how architects around the world are answering the design challenges of historic sites, environmental issues, and client needs with beautiful, thoughtful architecture.


Clipper Mill Assembly Building, Baltimore, Md.,
by Cho Benn Holback + Associates
Photography: Courtesy of Cho Benn Holback + Associates

Building Types Study: Multifamily Housing

Exclusively online, pictures, renderings, plans, and drawings of seven exemplary multifamily housing projects from around the world add to the four shown in the pages of Architectural Record and prove how a new generation of downtown apartment buildings is using high design to regenerate once dicey areas into vibrant neighborhoods.

PPG IdeaScapes

Special Lighting Section

From Houston to Singapore to Toronto, the lighting designers featured titillate the senses with their spectacular solutions to lighting projects with a variety of scale.

MechoShade

Archrecord2

Web exclusive: See slide shows of work by emerging Los Angeles firm Montalba Architects and find information for young architect and activist Leslie Thomas, who started and runs the traveling exhibition Darfur/Darfur–an effort based on her belief that beautifully presented imagery will move people to help find solutions to a grave humanitarian crisis.

ALPOLIC

Kara's Cupcakes, San Francisco, by Montalba Architects
Image: © Mitch Tobias

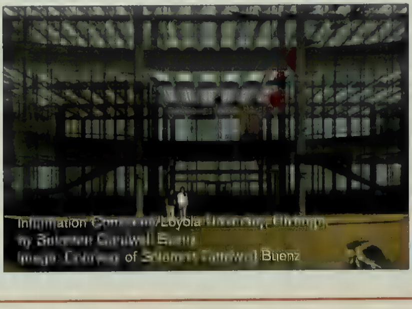
House of the Month

Exclusively online: In a woodsy South Texas enclave, San Antonio-based firm Sprinkle Robey Architects remakes a 1960's bachelor pad into a spacious home for two–seamlessly adding on varying volumes clad in sheet metal, stucco, and fieldstone.

419 Tower Drive, San Antonio, Tx.,
by Sprinkle Robey Architects
Photography: © Sprinkle Robey Architects/Hester + Hardaway

Continuing Education Opportunities

Read our editorial CE opportunity online and get credit! This month, learn how air-conditioning–perhaps the definitive building technology of the 20th century–has become a dirty word, and how architects are getting aggressive about passive design. As always, find sponsored sections and other credit opportunities at archrecord.construction.com.


Information Commons/Loyola University, Chicago,
by Solomon Cordwell Buenz
Image: Courtesy of Solomon Cordwell Buenz

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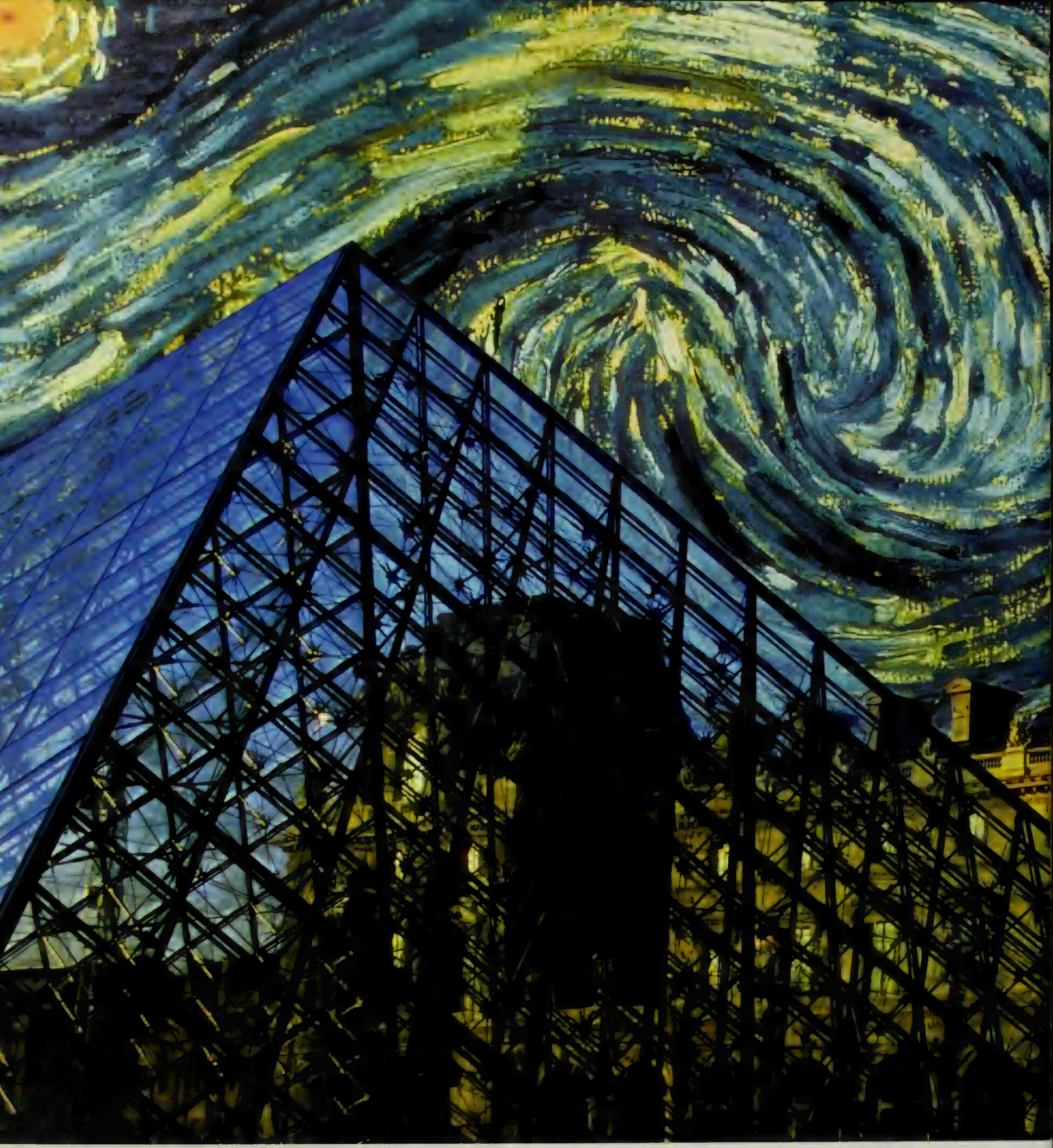

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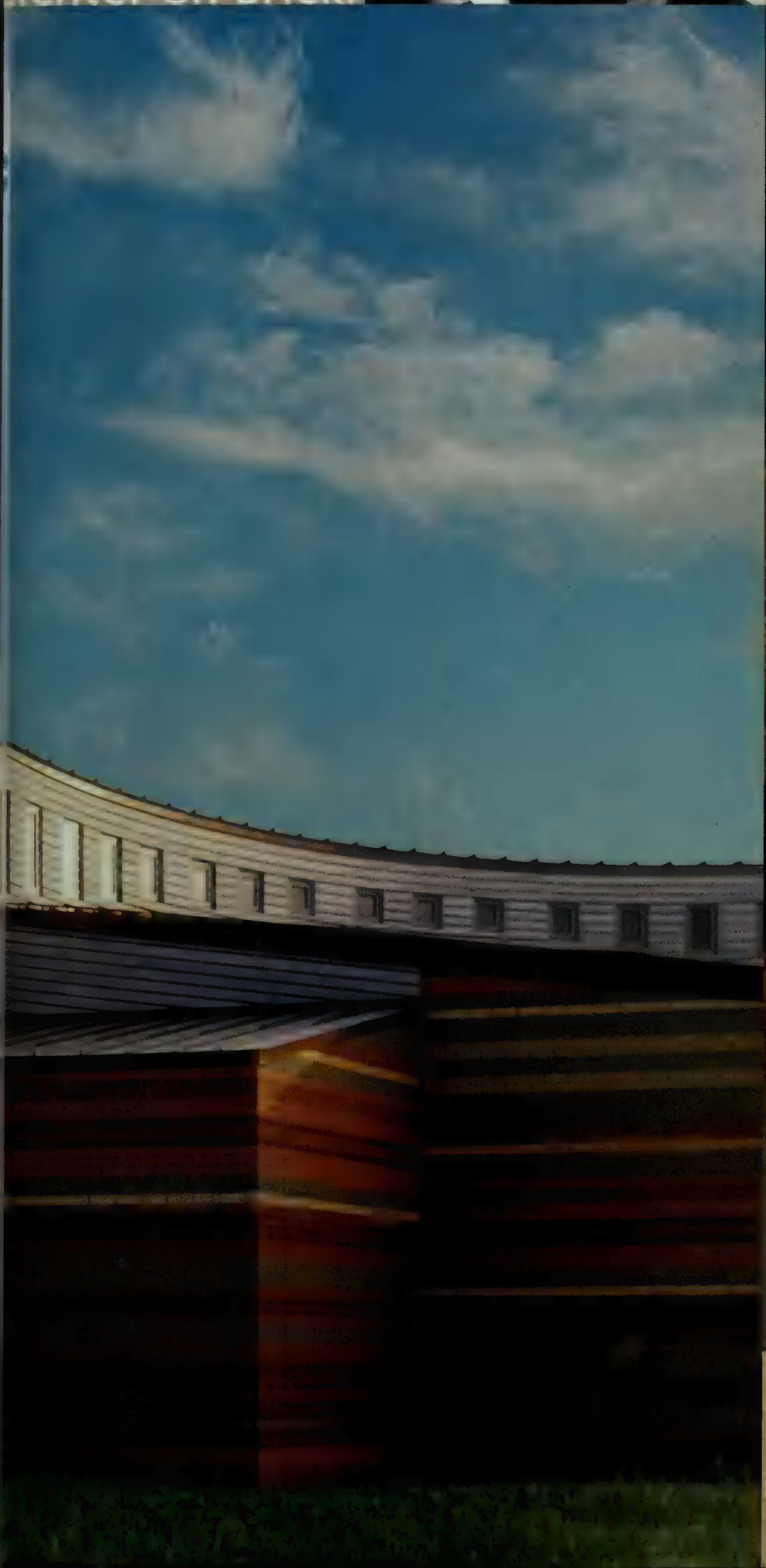
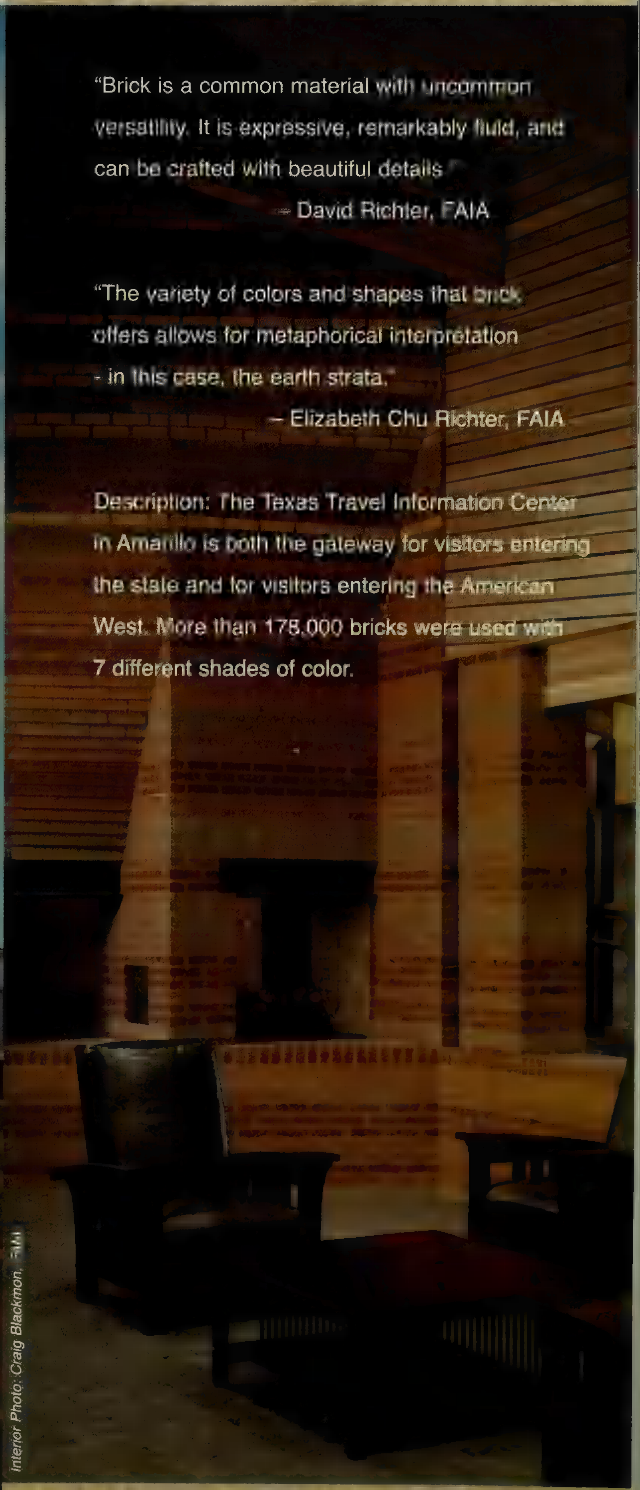
ichter on Brick.

Architect: Richter Architects
Design Principals: David Richter, FAIA
Elizabeth Chu Richter, FAIA
Client: Texas Department of Transportation
Completed: 2003





"Brick is a common material with uncommon versatility. It is expressive, remarkably fluid, and can be crafted with beautiful details."

– David Richter, FAIA

"The variety of colors and shapes that brick offers allows for metaphorical interpretation - in this case, the earth strata."

– Elizabeth Chu Richter, FAIA

Description: The Texas Travel Information Center in Amarillo is both the gateway for visitors entering the state and for visitors entering the American West. More than 178,000 bricks were used with 7 different shades of color.

Interior Photo: Craig Blackmon, FAIA

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Editorial

By Robert Ivy, FAIA

Architecture rises above abstractions. In case you have been seduced into thinking that our obligations to clients end when we hand over the keys to a project, or that all architecture inhabits a theoretical netherworld, think again. A building can engage an architect for a lifetime.

I was reminded in a most personal way last week, when a trip to my hometown took an unexpected turn. Stopping off to visit an old client and friend on a brilliant spring day, we revisited his home on a hilltop, out near the Natchez Trace Parkway. Prior to becoming the editor of this publication, my architectural firm had designed his family's house. Little did I realize that visiting the lawyer and his wife again would be like entering a time warp, or that it would teach me in an unforeseen way.

As fate would have it, the original contractor was at work on a modification to the house and was present that day. Fifteen years ago, I had suggested to Mike and Margaret that they hire the builder and his firm, a decision that proved right. Dick Featheringill had proved himself a skilled, intelligent, and ethical contractor—a combination of virtues that warranted immediate hiring, even at a slight premium over the field of his peers. Slim, clear-eyed, after all this time, there was Dick, figuring things out.

After lunch at the same kitchen table where we had sketched out our ideas together, we talked about craftsmen who had helped make the house a success, men like Jim McClellan, who was engaged again, 15 years later, to provide custom woodwork for the entertainment center. Then we toured a house that had seen two children grow to adulthood. We puzzled over suggested improvements. Dick reminded me that in adding on to the original structure, a simple, single-level ranch, we had created a cobweb of dual trusses, which would make any alterations to the roof complicated, particularly a new skylight. We scratched our heads, hemmed and hawed over how to get light into a family entertainment room.

Mike, who had been an enthusiastic partner in obtaining unique materials from salvage sites and had been a stickler for quality, pointed out much that had worked out well, such as the broad front porch overlooking the hillside filled with hardwoods. I realized that Margaret had sat out there birdwatching and gathering her thoughts for her column on gardening for the regional newspaper and a book on wildflowers she had authored. Mike had sweated out tough law cases on the tennis court he added.

It was rewarding to see that the main decisions still held. The proportions we had arrived at for the living and dining additions still lent a sense of importance to the human body. The sun streamed in through shaded south lights; the north elevation grabbed every scrap of ambient light and filtered it into an axial hallway. Not bad.

Time had passed. Shrubs that had been mere pips had filled out and blossomed, and trees now overhung the garden. But I could see that some decisions had gone wrong, such as the unprotected north windows, where rain splashing on a brick terrace had caused ponding and moss to grow. Unknown to this editor working in New York, Featheringill had been called in to the rescue and devised copper caps to shield the windows from winter rains. Architects, in spite of our best intentions and ideas, fail to account for all eventualities.

My own hometown called me onward, but not without ruminations on the life of an architect. How ironic, and how wonderful, that real people live in the designs that we labor over. Mike and Margaret illustrated for me, in a way that no textbook or continuing education class ever could, that lives are lived in the places and spaces we create, that families are sheltered and grow, that people's hopes are cradled there and can evolve and mature, sometimes with wonderful results. Architecture remains a social art, affecting real people at the moment of its making, but more important, for the days and years that follow. We never work in the abstract, despite our fascination with ideas, but for people who live, love, and grow up in our buildings. Even when we have moved on, our work remains and lives a life of its own: Architects create a framework for living.

Robert Ivy

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Believability is the most important ingredient.

Eldorado Stone Adds Authenticity to Design and Architecture of La Bellezza

Dennis Danahy
Scheurer Architects
Newport Beach, CA

Scheurer Architects of Newport Beach, California and Keller Homes have recently designed and built La Bellezza at Peregrine, a beautiful, award-winning community in the foothills of Colorado Springs, CO. The goal was to create something very special by presenting fresh, new site plan concepts within the local housing market while remaining sensitive to the traditions and benefits of rustic, mountain living.

"We remained true to what the 'story' of the property was through our architectural plan and landscaping design," says Bernie Costello, vice president of architecture at Keller Homes. "Maintaining the simple warmth, almost agricultural base of the property definitely created the backbone for the creative process and a set of principles to adhere to as we moved forward."

"The result is authentic architecture that has an appropriate scale in relation to its mountain surroundings," says Dennis Danahy of Scheurer Architects. Historically correct detailing features wrought iron, rough stone and wood accents to combine seamlessly with dynamic indoor/outdoor spaces. "This community of distinct homes establishes a truly unique sense of place within the rustic, natural Colorado setting. It breaks out of the typical, static "big box" floor plan to offer an exceptional living experience," adds Danahy.

There was a focus on indoor/outdoor living reminiscent of historic villages with thoughtful organization of homes in clusters that maximizes open space, preserves views, and encourages contact with the natural surroundings.

> **"This community establishes a unique sense of place."**

"The land was originally used as a dairy farm and we found existing stone on the old barn and area retaining walls that we wanted to incorporate into the new design," says Costello. "We had a three-part challenge in this project—we needed to find just the right stone for the homes that could blend and coordinate with the existing stone found on the retaining walls on site. It also had to work with a locally quarried stone being used for landscaping purposes," he says.

"By working closely with Colorist Ann Matteson, and Dennis Danahy at Scheurer, we agreed that Eldorado's Meseta Fieldledge combined with the custom overgrout technique offers even more authenticity to the project." Brenda Harris of Eldorado Stone adds, "This was truly an example of how teamwork can make all the difference in the success of the outcome. Having the support and commitment of everyone involved has helped create something we can all take pride in."

La Bellezza at Peregrine, Colorado Springs, Colorado
"Best Detached Community of the Year,"
PCBC Gold Nugget Awards, 2006

Builder: Keller Homes, Colorado Springs, CO
Architect: Dennis Danahy, Scheurer Architects, Newport Beach, CA
Colorist: Ann Matteson, Ann Matteson Consulting, Newport Beach, CA
Distributor: C&C Sand and Stone Company, Colorado Springs, CO
Mason: WW Masonry, Colorado Springs, CO
Eldorado Stone Profile Featured: Approximately 50,000-square-feet of Meseta Fieldledge with an overgrout technique application

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La Bellezza at Peregrine
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Letters

Record Houses Redux

Finally, something really different in ARCHITECTURAL RECORD's annual Record Houses issue! I was almost shocked to see the Boyarsky Murphy Architects' Christ Church Tower [page 134] in this year's collection. After thumbing through year after year of the same old regurgitated energy-guzzling, high-high-high-high-end suburban/rural houses, it's refreshing to see something really different: urban, restorative, very cool, and within walking distance to work!

Don't get me wrong. The mega-homes and jewel-like cabins you publish every year are all beautifully conceptualized and crafted. On the other hand, they never seem to veer far from very safe mid-20th-century ideas about house organization. They are also typically staged in natural settings that would get even a mobile home published. And if you start looking closely at the detailing, you might be tempted to borrow and butcher an expression made popular by Hillary Clinton: "It takes a virgin forest to build an ARCHITECTURAL RECORD house." By the way, please don't mention the budgets of these homes at any Habitat for Humanity meetings.

The Christ Church Tower is no Home Depot special, but just the audacious proposition of an 11-story house—and one in a ruined church—at least raises exciting questions about habitation (among other things). It takes little effort to imagine having enough mobility and money to live in any of the other houses published. This is a home you can at least debate at a cocktail party.

—Ron van der Veen
Seattle

I look forward to Record Houses every year, and the homes featured in this issue are individually very impressive. As a group, however, I found them quite disappointing in one important respect: Of the seven houses featured, all but one are located on sites that appear to be largely or completely isolated from other buildings and society in general. Even the Ring House in Japan, though it exists on a third-acre lot in a planned community, is described as a country retreat in a forested setting.

Although Sarah Amelar argues in her cover essay that "no two [of these] houses rose from similar circumstances," and that they emerged from "constraints and obstacles as colorful and varied as the venues themselves," six of the homes in fact are fundamentally similar in terms of having been built in an exurban or countrylike setting, with nary another building in sight and nature as the dominant context.

The challenges of designing a home in a context defined more by other buildings than by nature, and of designing a home that is attached on one or two sides, are at least as great as those of designing an unattached house in the countryside. And the results of successfully meeting such suburban and urban house-design challenges are at least as interesting, beautiful, and instructive to read about as the results of projects to build free-standing country homes.

Today, most of America's—and much of the world's—population lives in suburban or urban settings, and much of the best residential architecture, both in the U.S. and elsewhere, is being done in those settings. Record Houses 2007 appears largely oblivious to this, and is too enamored with a narrow and increasingly unattainable concept of the ideal home setting.

—Ronald O'Rourke
Washington, D.C.

I wonder if anyone at ARCHITECTURAL RECORD realizes what a disservice the Record Houses has been to architects over the years. I always pass my copy to colleagues, and always get the same response: "Why would anyone want to live in these cold, rigid, uninviting structures?" This year I received a new response: "If ever there was a case for *not* hiring an architect to design my home, this issue makes that case." At least you did not call the issue Record Homes, because there is nothing about these structures that makes them warm, inviting, personal sanctuaries.

—Wayne Compton
Chino Hills, Calif.

Water feature

As a swimmer and admirer of Julia Morgan, I was really pleased to see your feature on swimming pools [April 2007, "Just Add Water," page 86] in the Record Houses issue. Brava! Keep up the great work!

—Tracey Hummer
Via e-mail

Everyday sustainability

I find it extremely inconsistent and highly disappointing that, on the same day, I receive two of your publications: *GreenSource*, which comes with no wrapper, is printed with soy inks on no-chlorine, 100 percent post-consumer recycled paper; and ARCHITECTURAL RECORD, which arrives in a plastic wrapper on glossy, white paper with no apparent paper recycling regimen or choice of environmentally preferable inks. What kind of message is this sending to the architectural community? One that says green thinking is reserved for a "special" class of architects, and the "rest of us" need not concern ourselves with such pedestrian, functionalist goals?

The only way we are going to seriously make a dent in reversing environmental degradation is to make green, sustainable thinking a part of the everyday thought processes we employ as architects, and not reserve it for special cases. Your changing to an environmentally preferable printing process would be a powerful symbolic action as well as an extremely effective tangible measure toward that goal.

An even more effective measure would be to combine the two magazines into one, or, put another way, introduce the notion that the only architecture worth publishing is that which exhibits an aggressive sustainability agenda in addition to a thoughtful, poetic, transformative design agenda. And you would save a pile of trees in the process.

—Tom Hengelsberg, AIA
Burlington, V.t.

Boston's three-legged horse

Diller Scofidio + Renfro's ICA, featured on ARCHITECTURAL RECORD's March cover, while wonderfully detailed and boldly conceived, is odd looking, like a three-legged horse. The design does not express the powerful structure that obtains that 80-foot cantilever and ignores Geoffrey Scott's belief that "Thrust and balance, pressure and its support are the root of the language which architecture employs." If the ICA possessed the spectral presence of the Blur Building, which obviously it does not, then its irrational structural presentation, perhaps, would be moot.

—James A. Gresham, FAIA
Tucson

Corrections

An April news story [page 31] misspelled the name of the Pritzker Prize–winning architect James Stirling. Smiljan Radic's cantilevered swimming pool in Papudo, Chile [April 2007, page 88], was described as looking out over the Atlantic Ocean instead of the Pacific Ocean.

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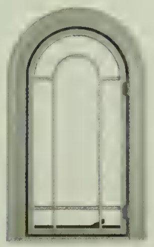

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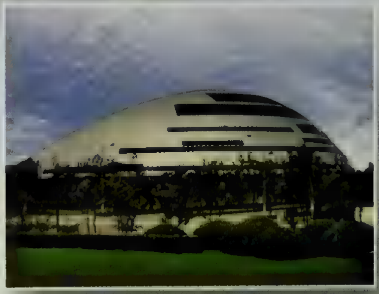

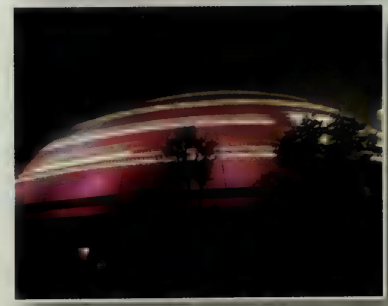

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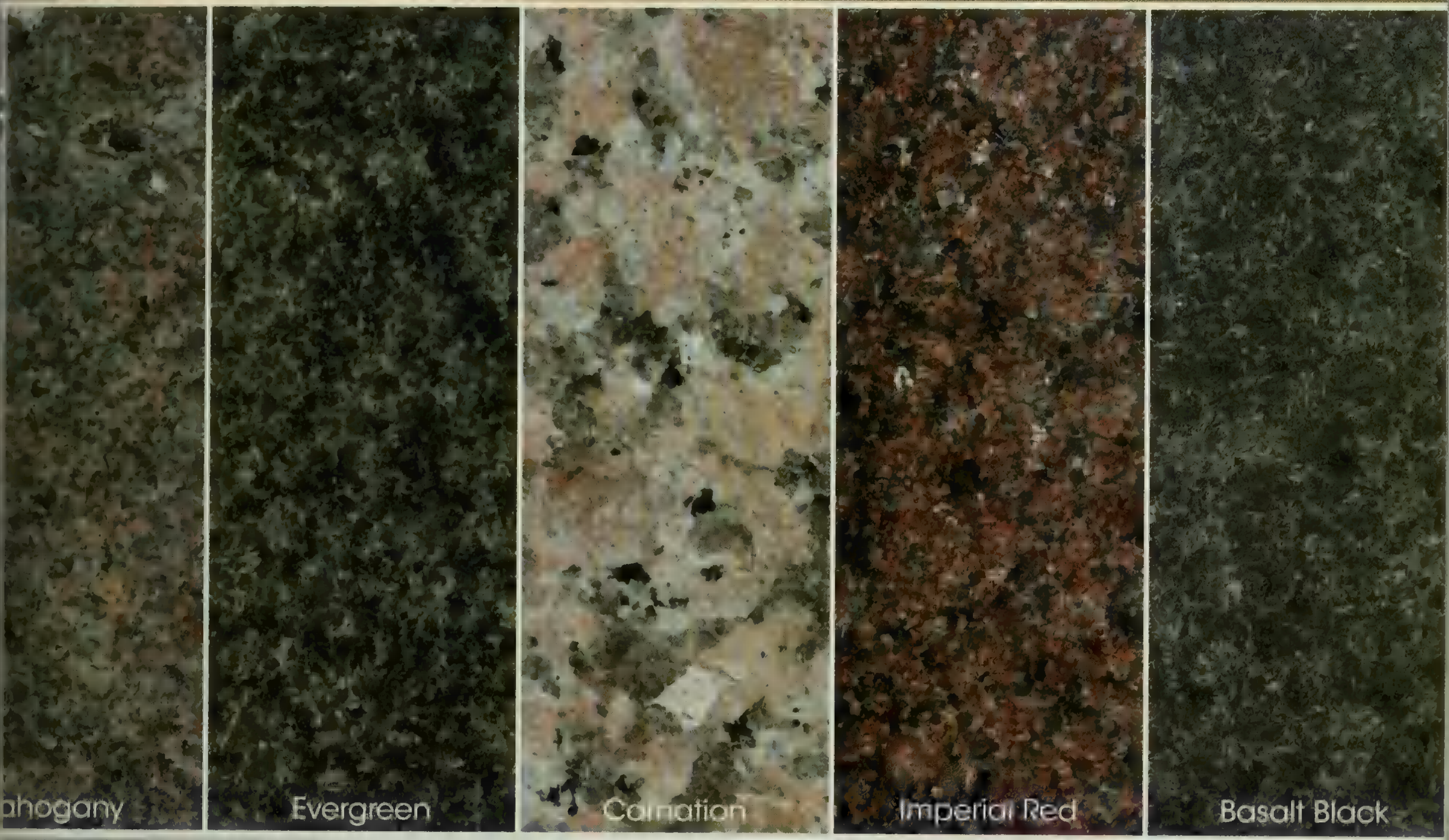

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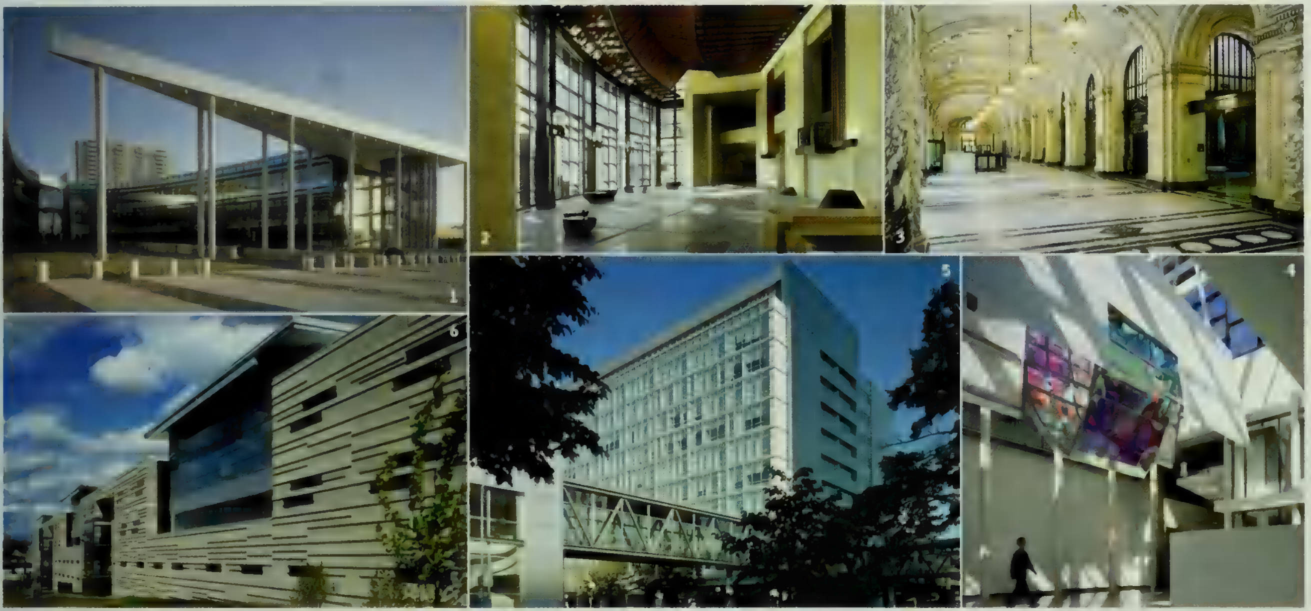
GSA bestows biennial Design Awards



Design Award winners for 2006 include Oklahoma City Federal Building (1); U.S. Courthouse, Fresno, California (2); Des Moines Federal Building (3); Howard M. Metzenbaum U.S. Courthouse, Cleveland (4); the Internal Revenue Service Center (5), and Bannister Federal Complex (6), both in Kansas City, Missouri.

There's no escaping the fact that federal buildings are symbols. When improving government efficiency was the order of the day during the latter half of the 20th century, this ethos resulted in lackluster architecture. But a new attitude has developed within the past decade or so, producing dramatically different designs and drawing praise from critics, including *The New Yorker*'s Paul Goldberger, who gave the keynote address at the General Services Administration's Design Awards ceremony, held on March 29, in Washington, D.C. These biennial honors recognize the finest government buildings—and plenty were in evidence.

Although the 18 award winners for 2006 were sufficiently stellar to speak for themselves, a no-nonsense jury of professionals from fields including fine art, architecture, engineering, and construction articulated their qualities. Generalizing about the 121 entries, jury chair Joan Goody, FAIA, said, "We believe that GSA is producing some truly high-quality projects, efficient and elegant designs, on time and on budget delivery."

Citing specific projects, juror Randolph Croxton, FAIA, lauded the textured, precast-concrete panels that clad the U.S. Courthouse in Fresno, California, designed by Gruen Associates/Moore Ruble Yudell. "It's hard to imagine how you could get any more value from every taxpayer's dollar," Croxton said. "Every dimension of the design is effectively explored and employed—humanistic quality in scale, elevation differentiation, color, materials, and assembly techniques, coupled with a poetic interpretation of the landscape."

Peter Schaudt praised Bohlin Cywinski Jackson's Peace Arch Point of Entry in Blaine, Washington, which he described as a "restrained and elegant solution" that emphasizes landscape over building.

Three projects reflect a variety of approaches in upgrading midcentury buildings. At the Des Moines Federal Building, in Iowa, the Smithgroup stripped a deteriorated, underengineered masonry facade dating to 1967 and substituted a lighter, glazed curtain wall that helped the building earn a LEED Silver rating. In Chicago, Berglund Construction and architect Kellermeyer Godfryt Hart sensitively repaired limestone panels cladding the 70-year-old U.S. Custom House, replacing just 12 percent of them and helping the project remain under its $10 million budget. And architect Lehman Smith McLeish was cited for a new entry pavilion that simplifies circulation at the 1976-vintage Javits Federal Building in Lower Manhattan.

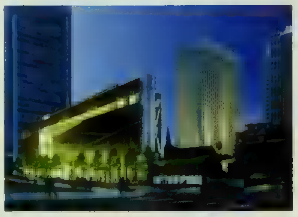
The GSA launched the Design Excellence Program and biennial awards in 1994, inspired by guiding principles for improving federal architecture that the late Senator Daniel Patrick Moynihan laid out during the Kennedy administration. Better late than never. "Without the program, this year's award-winning projects wouldn't have existed at all, let alone received any awards," Goldberger said. Visit architecturalrecord.com for a complete list of winners. *Allen Freeman*

ON THE BOARDS

The Fort Worth Museum of Science and History unveiled plans last month for a new 133,000-square-foot building.

Designed by Legorreta + Legorreta, the Mexican father-son duo known for their use of texture and color, it will replace the museum's current, aging home. Construction is expected to conclude in 2009. *Elizabeth Lunday*

The Afro-American Cultural Center, in Charlotte, begins construction later this year on a new home downtown. The Freelon Group designed a facade inspired by the patchwork quilts that slaves once created to encode escape routes. Due to open in 2009, the 45,000-square-foot building will feature galleries and classrooms. *C.J. Hughes*



The Green Circle Shopping Center, in Springfield, Missouri, will be eligible for LEED Platinum certification. Matthew Edwin Hufft, AIA, of Hufft Projects, says the 26,000-square-foot retail building is "detailed around the LEED system, almost to a point." Sustainable features include a green roof, rainwater collection, and geothermal wells. Construction wraps up this fall. *David Sokol*

For full coverage on these projects:
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Remember not to touch the Alamo

It's hard to imagine a battle raging where mariachi bands now play and tourists sip margaritas. Yet in 1836, the 187 defenders of the Alamo, including Davy Crockett and Jim Bowie, fought and died near the spot where later generations would build the San Antonio Riverwalk. Holes from bullets and cannon blasts remain in the old fort's walls as a reminder of the Mexican forces' siege.

It's not these battle scars that have preservationists worried—they're part of the building's history—but they are concerned about the effect of 2.5 million visitors a year. Although asked not to touch the garrison walls, many people are unable to resist, thereby wearing down the stones and leaving a build-up of oils and salts. Rising moisture from the ground, which reacts with limestone and causes it to flake, poses another threat. While previous conservation efforts stabilized the damage, further restoration is now needed to preserve architectural details.

"The buildings aren't falling down, but we want to make sure they don't fall down," says David Stewart, director of the Alamo. "We want to make sure the Alamo is here for our great-grandchildren to enjoy."

The Daughters of the Republic of Texas (DRT) operates the facility on behalf of the State of Texas. This month it is releasing a master plan for the Alamo's preservation, prepared by Ford Powell & Carson. In addition to conservation, the plan addresses visitor flow through the site, the design of exhibits and interpretative materials, an expansion of the DRT's research library, and construction of new educational facilities.

Perhaps surprising to some, since the Alamo is such a well-known symbol of Texas, the DRT wants to work with the city of San Antonio to create better signage at Alamo Plaza, which surrounds the complex. Many visitors currently mistake a mission church there, with its iconic carved facade, as the Alamo itself because the locations of long-demolished fort walls are poorly marked. Other historic features, including the site of the barracks where Jim Bowie died, also could use a visibility boost.

The DRT expects to launch a capital campaign this summer to fund the improvements; it includes $40 million for preservation and new construction, $10 million for a permanent preservation endowment, and $10 million for an educational endowment. The organization hopes that individuals, corporations, and foundations will remember the Alamo—this time with a check. *Elizabeth Lunday*

AIA will green its headquarters

The American Institute of Architects (AIA) is about to start walking the talk. Already garrulous on matters of sustainability, its leadership is evaluating a range of options for greening its headquarters in Washington, D.C. "We want to make our headquarters a demonstration project," says RK Stewart, FAIA, the AIA's president. "We have the opportunity to provide a great place for people to work and for our members to visit, and an opportunity to reach out and show the public what's possible."

Designed by The Architects' Collaborative, the Walter Gropius–led design firm based in Cambridge, Massachusetts, the 180,000-square-foot building has not seen significant renovations since it opened in 1973. The AIA occupies two floors, while related architecture associations and a law firm rent the remaining five levels. But the AIA's office needs have changed over the years and this, coupled with the institute's focus on sustainability as part of its 150th anniversary celebrations, prompted it to begin thinking about the building's future. It hired Quinn Evans Architects to study its needs and suggest alternatives for updating the structure in a sensitive, green way.

"This is a future landmark building," observes Carl Elefante, AIA, a principal with Quinn Evans' D.C. office. "What we do now is going to affect its condition when it turns 50 and becomes eligible to be designated a landmark, so we should be thinking of that stewardship today."

The AIA is currently evaluating Elefante's recommendations. Stewart says that although it's far from making any firm decisions, the AIA is considering everything from installing rainwater collection and graywater recycling systems, which would reduce water use, to adding wind turbines and photovoltaic cells on the roof, to generate power. "Everything is on the table," Stewart says. "We want to figure out how to demonstrate what really works for members and the public, and also be good stewards of the building at the same time as being stewards of the planet." He adds that the AIA hopes to finalize a design by the end of this year, but beyond that he is unable to lay out a construction timetable or budget.

The AIA built its headquarters during a 1970s effort to rejuvenate The Octagon House, its former home nearby. Dating to 1800, this William Thornton–designed building now houses the American Architectural Foundation. *James Murdock*

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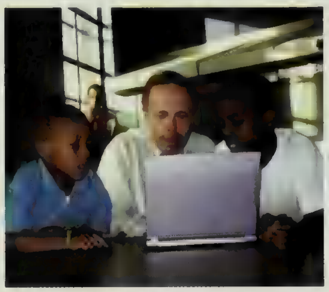
AIA's Jefferson Award comes full circle



Michael A. Fitts, FAIA (left), and David Dixon, FAIA (above), won this year's Jefferson awards.

Michael A. Fitts, FAIA, didn't think he would receive the Thomas Jefferson Award for Public Architecture when he helped launch the prize in 1991. Back then, the American Institute of Architects' Committee on Public Architecture had a threefold objective: to recognize advocacy and achievement in public architecture; to raise the stature of public architects; and to promote architecture in the mainstream and in the profession. But fittingly, after 36 years pursuing exactly these goals as the state architect of Tennessee, Fitts is being lauded with one of two Jefferson awards at the AIA 2007 National Convention and Design Exposition this month.

Like many architects, Fitts initially was prejudiced against a government career—"It's hard to get architects interested in government work," he admits—and calls his first job with government, as a civil engineer for the State of Tennessee, "a stopgap measure." But meeting then-state architect Clayton Dekle in 1963 changed his mind. "I became enamored with how he was working with a variety of architects and pushing them to produce excellence." Fitts went on to earn his M.Arch. at the University of Tennessee, returned to the office, and was promoted to the top position in 1971 at age 36. He also earned a third degree, in law, in 1980. Fitts cites the restoration of the State Capitol, headed by John Mesick, AIA, of the firm Mesick Cohen Wilson Baker, as a project of which he's particularly proud. He adds that high-quality buildings "attract better people who can perform better government service" and influence local architectural standards.

The other recipient of this year's Jefferson Award, David Dixon, FAIA, may not have expected to win either. As principal in charge of planning and urban design at the Boston firm Goody Clancy, Dixon is the first urban designer to be honored in the category of private-sector architects who have produced noteworthy public projects.

Dixon's contributions aren't architectural. Rather, he applies smart-growth principles to high-density urban neighborhoods. Almost singlehandedly, Dixon has orchestrated the repopulation of city centers to ensure income diversity, public transit options, and open space. He points to the Civic Vision for Turnpike Air Rights Development, in Boston, and his role in lifting the development moratorium in Kendall Square, in Cambridge, Massachusetts, as case studies in this kind of deployment. The projects also highlight Dixon's extensive educational outreach to both communities and real estate developers to effect positive change.

Dixon happily professes his love for Boston, and cities in general, but says that nowadays 90 percent of his work takes him elsewhere. Regardless of location, the 59-year-old guesses that his devotion to the dynamism and diversity of traditional urban cores was propelled by a Los Angeles childhood in which "I only ran into people who were white, upper middle class, and Jewish." *David Sokol*

Latrobe Prize goes to urban flood researchers

Recognizing the role that architects can play in lessening the impact of climate change on the built environment, the American Institute of Architects (AIA) has awarded the 2007 Latrobe Prize to a team of architects and engineers who are researching waterfront development and the ramifications of severe urban flooding. Guy Nordenson, founder of Guy Nordenson Associates and a Princeton University structural engineering professor, leads the seven-member group. Also on the team are Stan Allen, AIA, dean of the Princeton University School of Architecture; Catherine Seavitt, AIA, and James Smith, of Princeton University; Michael Tantala, of Tantala Associates; and Adam Yarinsky, FAIA, and Stephen Cassell, AIA, of the Architectural Research Office.

The team receives $100,000 to fund a two-year study of New York Harbor's rivers, bays, and tidal estuaries. This effort merges three studies already under way. In addition to researching the urban ecology of harbor waterways, the group will propose new public transportation corridors to link the New York and New Jersey waterfronts, and investigate the urban consequences of severe flooding. Elements include urban water systems research, GIS-based disaster mitigation analyses, and video documentation of the waterfront.

Nordenson hopes that his findings can help further the dialogue about global-warming impacts and perhaps serve as a starting point for architects and engineers to reexamine waterfront planning and development. "It's not just a passive response to global climate change," he says. "The real problem of designing for raised sea levels is a part of this. What we're trying to do here is to face up to reality and show people how serious this is."

Stan Allen is proud that this year's award winners are largely based at Princeton. "Nordenson's project exemplifies the kind of work we would like to see at the School of Architecture. The Latrobe Prize helps to jump-start our new Center for Architecture, Urbanism, and Infrastructure," he says.

The Latrobe Prize, named after Benjamin Latrobe, one of America's first professional architects and designer of the U.S. Capitol, is awarded biennially to research efforts that show potential for launching significant advances in the architectural profession. The previous winner, Gordon Chong, FAIA, presents his work on the cultural impacts of health-care design at the AIA's convention this month. *John E. Czarnecki, Assoc. AIA*

AIA/ALA announce library design awards

The American Institute of Architects and the American Library Association (ALA) have announced nine winners of the 2007 Library Building Awards. These biennial honors, jointly sponsored by both associations, recognize the finest in library design. This year's projects range from public institutions and school libraries to Bill Clinton's Presidential Library. The winners are Robin Hood Foundation Library, New York City, by Gluckman Mayner Architects; Desert Broom Branch Library, Phoenix, by richärd + bauer architecture; Shunde Library, Foshan, China, by P&T Architects and Engineers; Ballard Library and Neighborhood Service Center, Seattle, by Bohlin Cywinski Jackson; Santa Monica College Library Expansion and Renovation, Santa Monica, California, by CO Architects; David Bishop Skillman Library, Easton, Pennsylvania, by Ann Beha Architects; William J. Clinton Presidential Center, Little Rock, by Polshek Partnership Architects; Fleet Library, Providence, by Office dA; La Grande Bibliothèque, Montreal, by Patkau, Croft-Pelletier, and Menkès Shooner Dagenais Architectes Associés. The ALA presents these awards at its national convention in June. For project photos, visit architecturalrecord.com. *J.M.*

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Piano quits controversial skyscraper

Efforts to take Boston's skyline spectacularly vertical have snagged in political and business realities. In March, Renzo Piano bowed out of developer Steve Belkin's controversial plan for an 80-story office tower, which at 1,000 feet would be New England's tallest. The city had already granted preliminary approval to the project, but preservationists objected that the scheme included demolishing a noted building by Paul Rudolph. The tower's scale and economic viability have also been questioned.

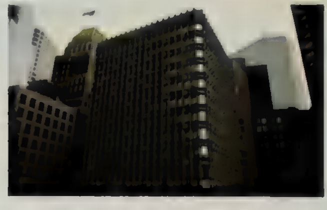
In a statement announcing his departure, Piano expressed support for what he termed a "challenging adventure." But sources familiar with the project say that the split was caused by creative differences, primarily over Belkin's decision to widen the building from 140 feet per side to 160 feet, which Piano thought would ruin the tower's slim silhouette and deprive the building and surrounding space of light and air.

Following Piano's exit, Belkin's Trans National Properties tapped CBT Architects, a Boston-based firm that was working on the project with the Italian architect, to carry his scheme to completion. It also added Ove Arup & Partners and urban designer Ken Greenberg. "Now that we have a conceptual design for the tower, we are working diligently with our team to implement the vision," a Trans National spokesperson says. Even so, Piano is said to be unhappy with the degree to which the altered design is being attributed to him.

Belkin's financial plan for the tower was due to the city in April. Kairos Shen, director of planning for the Boston Redevelopment Authority, says that shuffle of design team members won't scuttle the project, but it could create complications: "If we don't think they have the right people involved, the city may recommend changes."

The project has the backing of Boston's mayor, Tom Menino, who last year solicited designs for an iconic tower to occupy the site of a city-owned parking garage in the financial district. Trans National was the sole respondent. It owns the Rudolph-designed Blue Cross/Blue Shield Building nearby and proposed to demolish the 1960-vintage structure to create space for a large public plaza. Piano was prepared to save some but not all of the building, according to sources.

The Boston Landmarks Commission issued a demolition stay for the Rudolph structure in March. "The city will not allow demolition unless there is a signed development agreement and a schedule for actual construction of the new building," Shen says. *Ted Smalley Bowen*



Piano's tower (above) could replace a Rudolph building (right) in Boston.

Baby boomers teeter on edge of vision crisis

It was a kitchen caper enough to give most people nightmares. A woman in her mid-70s, who recently suffered vision loss, would enter her kitchen and each time emerge with black-and-blue marks. Diminished eyesight had stolen her ability to discern contrast between cabinets and the surrounding wall surfaces, explains Michael Honan, a clinical rehabilitation manager at Lighthouse International, a vision services agency. In the glare of two bright windows, she continually bumped into doors she was unable to see.

With the aging of the baby-boom generation, this senior's experience may soon be commonplace. Tara Cortes, president and C.E.O. of Lighthouse, points to several figures that suggest the U.S. is on the verge of a low-vision epidemic: Six million Americans are already affected with age-related macular degeneration, the primary cause of vision loss in the U.S, and as many as 15 million more are pre-symptomatic. In addition to age-related sight loss, 5.3 million adults suffer impaired vision caused by diabetic retinopathy—approximately one quarter of diagnosed diabetics—and the obesity epidemic promises to boost that showing.

Low vision, along with boomers' propensity toward independent living, suggests a different set of design solutions from those addressing complete blindness, which affects only 8 percent of all visually impaired people. For now, the challenge is educating architects and planners about how the approaches differ—and ending a bias to design solely for blindness.

Danise Levine, assistant director of the IDEA Center at the University at Buffalo, says that while universal design principles take low vision into account, existing standards are prejudiced against low-vision building occupants. "Most accessibility codes are geared toward people with mobility issues, which is not what most low-vision people grapple with," she explains. In cities such as Atlanta, residential "visitability" regulations, which guarantee entry and bathroom access for disabled visitors in new homes, also emphasize physical impairment. Even the best intentions, including mandatory curb cuts for wheelchair access, put low-vision pedestrians at a disadvantage, since these people are unable to discern the dip in a sidewalk's surface.

Architects are slowly waking up to the low-vision epidemic. According to Eunice Noell-Waggoner, president of the Center of Design for an Aging Society, they are "becoming more curious" about accommodating low-vision users. The American Institute of Architects now includes information about lighting techniques in its guidelines for health-care facilities.

Remedies are easily at hand. Simple choices about materials, lighting direction, and color contrasts can ease low-vision users' assimilation to new construction. And an array of affordable modification devices, from talking calculators to nonglare light bulbs, allow homeowners and office workers to confidently maneuver daily life in existing spaces. Sustainability is also conducive to the phenomenon, since task lighting usually gobbles less energy than an all-out wash, the glare from which diminishes people's ability to perceive contrast.

Further, systematic efforts to improve environmental conditions for the visually impaired are under way. Leslie Moldow, AIA, a principal at Perkins Eastman who specializes in design for aging, points out that in health-care development, better, nonglare illumination standards are being adopted one state at a time. The Center of Design for an Aging Society recently published a booklet about lighting for low vision. And Cortes reports that Lighthouse is lobbying Congress to approve reimbursement of vision modification devices currently not covered by Medicare.

Honan, the Lighthouse clinical worker who encountered the elderly bruise victim, helped improve her situation swiftly. Applying a border of electrical tape created contrast on her kitchen cabinets, and darker curtains reduced solar glare. Although solutions for low-vision environments are within reach, Noell-Waggoner says that awareness and education still has a way to go. Contractors, eye doctors, and architects all need to see the light. *David Sokol*

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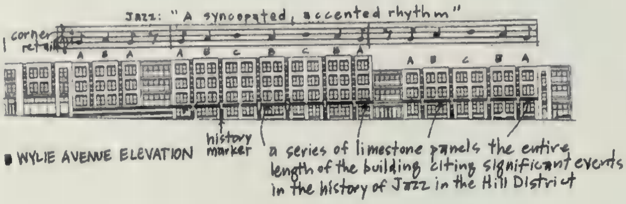
Architects jazz up public senior housing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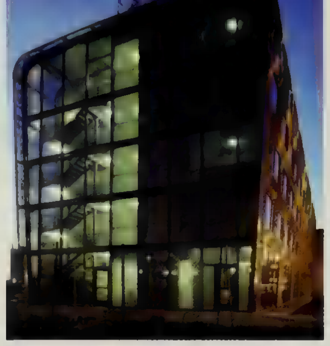

Rothschild Doyno's senior complex (left) and Murphy/Jahn's SRO (above).

For too long, most publicly funded housing for seniors and the disabled bordered on being dull, if not downright dismal and "institutional." But thanks to architects who lavish the kind of thoughtful design attention hitherto rarely seen in such developments, and clients who are increasingly willing to take a chance on them, even some publicly funded projects are breaking the mold.

Victor Regnier, FAIA, a University of Southern California professor who specializes in senior-housing design, is currently writing a book on the subject—timely, given the growing demand for these buildings as baby boomers age. Regnier sees a dawning willingness on the part of housing officials to invite innovative design. There's also a new political will to demand it.

One project resulting from this push is Near North Apartments, a single-room occupancy building designed by Helmut Jahn of Murphy/Jahn Architects. Mercy Housing Lakefront commissioned the $14 million, 96-unit facility to provide permanent residences for low-income or formerly homeless people, some of whom are elderly and disabled. Completed this spring, it stands on the site of Cabrini-Green, an infamous Chicago housing project now mostly demolished. The five-story building is clad in rippled, satin-finish stainless-steel siding. This unpolished facade is tempered by round edges near the rooftop and large, punched windows whose e-coated glazing reflects a faint blue tint. Its elegant, Minimalist design stands out—which is exactly what Cindy Holler, the nonprofit's president, wanted. "It's stigma-smashing," she says. "It's okay not to blend in and to be provocative."

Other new buildings are aiming for a more subtle approach, evocative rather than provocative. A 108-unit public housing complex for the elderly in Pittsburgh, developed by McCormack Baron Salazar, incorporates the history of an African-American neighborhood into its facade. Architect Dan Rothschild, AIA, of Rothschild Doyno Architects, says he was inspired by the storied Hill District, a popular stop for jazz musicians during the 1920s to 1940s. He incorporated the spirit of jazz into the building's plan by dividing the front elevation into segments whose widths vary to the relative length of musical notes—a quarter note, half note, or whole note—adding visual rhythm to the streetscape. Construction of the $13 million complex finishes next month.

Regnier observes that more and more projects like this one are employing better design to serve the population they house. "There has been a stronger focus on developing contextually based designs that gear toward the community and reflect what the city is about," he explains.

Consideration of context can be achieved not only with exterior details, but also through the architectural program. Regnier cites the Burbank Senior Artists Colony, a complex of 141 senior apartments located near major movie studios in Burbank, California, developed by Meta Housing with some government support. Scheurer Architects designed two recording studios as well as a small theater so that the facility's residents can flex their creative muscles by producing plays and films. *Violet Law*

Catovic Hughes embraces context

It can be difficult for small, residential firms to get the recognition they crave if they turn out only a handful of designs a year—unless, of course, their work wins awards. Consistently. The husband-and-wife team of Michael Hughes and Selma Catovic Hughes belong to the latter category. Their Mooreland Residence, in Baton Rouge, Louisiana, recently earned a 2006–2007 Faculty Design Award from the Association of Collegiate Schools of Architecture. The same project also nabbed an Honor Award from the AIA Colorado Chapter—as did The Home, an elegant, ADA-friendly residence for Hughes's elderly parents in rural Georgia.

Although Catovic and Hughes design well at the building-specific scale, a hallmark of their work is an intuitive feel for embracing context. The Mooreland House, for instance, occupies an infill, suburban site that the owners' jogging club had used as a warm-up area. By adding porches on the front and rear elevations, the architects established an open relationship with the neighborhood—creating, Hughes says, opportunities for the owners to "offer friends an iced tea when they run past the house."

Hughes's parents live in The Home (left), while the Mooreland Residence welcomes joggers (far left). TrailerWrap reinvents mobile home design (below).

TrailerWrap, a project that will be completed this month, also explores community bonds. Working with students at the University of Colorado at Boulder, where he taught until last year, Hughes stripped a mobile home to its chassis and developed a kit of parts to reconstitute it with an eye to sustainability. But as Hughes explored passive cooling methods, such as breezeways, he realized that the relationship between mobile homes was as important as the design of individual units: By orienting house entries toward each other in a cluster, developers can create courtyards where residents can socialize.

Catovic and Hughes both teach at the University of Arkansas School of Architecture, arriving there by way of Colorado; Washington, D.C.; and New Mexico. They've moved around a lot for a couple still in their thirties, but certain experiences inform everything they do. For Catovic, it was her childhood in Bosnia—interrupted by that country's civil war—and for Hughes it was working for Frank Gehry and Richard Meier. *J.M.*

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Creative Time is still creative—elsewhere

By accident or design, Creative Time helped catalyze the transformation of New York City's built environment. This nonprofit group has sponsored and commissioned public art to energize buildings and streetscapes since 1974. Now it is looking outside the Big Apple. It recently sponsored a video installation along four blocks of the Strip in Las Vegas, and this spring will announce plans for an ambitious project in New Orleans—a city in transition that, like New York in the 1970s, could use a big dose of transformative art.

"Real estate is an important part of the history of the organization," says president and artistic director Anne Pasternak, adding that developers generally follow in the footsteps of artists. Many of Creative Time's best remembered projects, she explains, occupied prominent sites now radically transformed by construction: a sandy landfill in Lower Manhattan that became the residential enclave of Battery Park City, and Times Square before Disney and other corporations edged out the XXX theaters.

But in addition to changing city spaces, Creative Time wants to spotlight its past. As part of its 33rd birthday celebration this month—a self-consciously arbitrary anniversary, Pasternak admits—artists are hanging plaques in 33 locations around New York that they deem important to the city's everyday history. Sites include a women's jail in Greenwich Village that counted Black Panther Angela Davis among its inmates, and Andy Warhol's Factory. *J.M.*

Rotterdam Biennale opens this month

What is the future of our cities and what role will architects and urban designers play in it? The 2007 International Architectural Biennale of Rotterdam (IABR), which runs from May 24 to September 2, seeks to answer these questions through a series of exhibitions that explore the theme of "Power: Producing the Contemporary City."

This year's IABR, the third such event, is being curated by the Berlage Institute in Rotterdam, a renowned post-doctoral program for architects and city planners. Vedran Mimica, who heads the Berlage curatorial team, explains that his group wants the IABR to serve "the new generation of architects." To this end, two of the main exhibitions are made for and by emerging architects and planners. One, *Visionary Power*, is a "worldwide appeal to young architects to take responsibility for the future of the city," Mimica says, and invites 15 young international firms to contribute design proposals for cities as diverse as São Paulo, Ceuta, and Johannesburg. The second, *International Master Class*, gives architecture students the chance to design prototypical buildings for Rotterdam South, an area separated from the main city of Rotterdam by the Nieuwe Maas river. Like the outskirts of many European cities, Rotterdam South is currently blighted. But Mimica describes the neighborhood as "similar to the south bank of London in its potential for rebirth."

The IABR is not the only biennial to focus on cities—the 2006 Venice Architectural Biennale explored a similar theme—and considering how countries such as China and India are embracing urbanism on an unprecedented scale, it is unlikely to be the last. Mimica says that Rotterdam will differentiate itself from Venice through the content of its exhibitions. "Venice was concerned with the statistics and data of the megacity," he says. "At the IABR we would like to go beyond exposing the phenomena to talk about designing and developing the cities." As Rotterdam was practically rebuilt from scratch following World War II, it provides an excellent backdrop for the discussion.

This year's biennale is being held at Rotterdam's Kunsthal, designed by local firm Office of Metropolitan Architects, and at the Jo Coenen–designed Netherlands Architecture Institute. These buildings are also sites of exhibitions for a larger, citywide festival called "Rotterdam 2007: City of Architecture," of which the IABR is just one small part. This yearlong event, sponsored by the city and international corporations, includes lectures, a competition to build follies in a dockyards district, an exhibition on Le Corbusier, and bicycle tours of Rotterdam's architecture. *Diana Lind*

Koolhaas tower ups the ante for Jersey City

The skyline of Jersey City, New Jersey, which faces Manhattan from across the Hudson River, increasingly seems like a mirror image of its neighbor: a parade of gleaming high-rise buildings line its waterfront. For developers and city officials, that's exactly the point. They hope to lure businesses by creating something that looks and feels like Manhattan, but with lower tax bills and cleaner streets.

Jersey City may have tipped the scales more in its favor with a proposed 1.2-million-square-foot, 52-story tower designed by Rem Koolhaas, the first major residential project in the U.S. for the Dutch architect's Office for Metropolitan Architecture (OMA). The building resembles a stack of four giant Lego blocks, turned at alternating right angles. Its top block will feature 150 condominium units, with 180 more units and 252 hotel rooms in the shaft below it, and retail stores occupying 87,000 square feet in the pediment. To compensate for the demolition of artists' lofts that had occupied the site, plans also call for 120 lofts priced at below-market rental rates for artists, plus 19,000 square feet of galleries where these residents can show their work.

In choosing Jersey City for its debut, OMA joins Cesar Pelli's firm and Kohn Pedersen Fox, which have also recently designed buildings there. But Shohei Shigematsu, director of OMA's New York office, says that proximity to big-name architects did not affect the firm's decision—quite the opposite. The surrounding area's low density allows for a clear view of OMA's building from multiple vantage points. "In New York, this would be just another facade," Shigematsu says.

But there are some people who may not look upon the building admiringly—especially those who were locked in four years of court battles to prevent the developer, a partnership between the Athena Group and BLDG Management, from destroying a tobacco warehouse on the site that had been converted into residences.

"They're trying to cram in large buildings without regard to aesthetics, open space, historic resources, and community planning," says Joshua Parkhurst, president of the Jersey City Landmarks Conservancy, which formed to slow the development boom. He would rather see OMA's tower built elsewhere, or its scale reduced. The building severs the waterfront from historic warehouses behind it, Parkhurst says, and people might never venture beyond it. "There's no transitional zone here, but this could be the gateway to the industrial past of the city." *C.J. Hughes*

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Skywalk provides costly Grand Canyon view

While much of the Grand Canyon is accessible to camera-toting tourists, the West Rim, mostly occupied by the Hualapai Indian Reservation, remains desolate. Dirt roads are the primary transportation route, and only a few structures dot the landscape.

The Hualapai, along with Las Vegas developer David Jin and architect Mark Johnson, are hoping to change this—and improve the tribe's struggling economy—with the Grand Canyon Skywalk. This 70-foot-long, glass-bottomed walkway cantilevers over the ravine's edge, giving visitors a clear view 4,000 feet down to the canyon floor. "It's like nothing you could even imagine," says Johnson, who first set foot onto the Skywalk at its unveiling on March 20. "I'm sure I'll never work on anything like this again in my career."

The viewing platform projects over a relatively narrow side canyon known as Eagle Point. Two large box beams, composed of 21 welded pieces, form the horseshoe-shaped structure; steel caissons, attached to piles drilled 40 feet into thick limestone, anchor them. Johnson says its shape was developed to maximize visitors' perception of the dramatic surroundings—and the sensation that they are floating over the canyon.

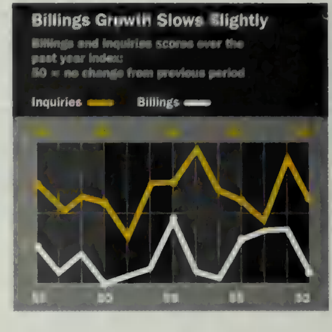
The walkway measures 10 feet wide. Its transparent portions are made of five, 3-inch-wide structural-glass layers, each strengthened with an adhesive interlayer. The glass can support a live load of roughly 100 pounds-per-square-foot, or 800 people, but no more than 120 people will be allowed on it at a time. The entire Skywalk weights more than 1 million pounds.

Regular admission price is a steep $25 per visitor—and that's not counting a $50 fee to enter the Hualupai reservation. Jin will split revenue from the project with the tribe, but he himself fronted most of the $30 million to construct the walkway.

Critics say that the walkway disrupts the canyon's natural landscape, while some tribal elders express concern that it ruins sacred ground. Johnson responds that the Skywalk "doesn't detract at all," adding that it is barely noticeable in relation to the massive size of the canyon itself. But new criticism emerged in the month since the attraction opened. Some visitors express disappointment that the Skywalk's view is less expansive than anticipated; others balk at the dearth of amenities, including bathrooms, and the steep entry fees.

The tribe is working to address some of these problems. Future phases include a 27,000-square-foot museum, restaurant, visitor center, and event space located above the walkway's cliff-side elements. Its design, Johnson says, mimics the site's geographic formations, with a facade clad in sculpted concrete panels to match rock faces. Nearby, the tribe is developing a re-created Indian village, which they hope will be another tourist draw. "This is going to be their future. You feel a personal tie to that," Johnson says. "We've been fortunate to be here since it started. I guess sometimes you just luck out." *Sam Lubell*

ABI tracks slowdown



The American Institute of Architects' Architectural Billings Index for February indicates that the return of colder, more seasonal weather impacted billing activity at many of the 300, mainly commercial, firms surveyed. The index posted gains in January due to warmer temperatures nationwide that month. *J.M.*

China cracks down on copycat architects

In China, the business practice of bootlegging is not just confined to DVDs and Louis Vuitton handbags. Foreign architects have discovered that their designs, even their company names, are also attracting copycats. But some are beginning to fight back. In one of the first cases in which the government is allowing a foreign firm to sue a Chinese business, Woodhead International, Australia's second-largest design firm, filed a lawsuit in Shanghai earlier this year against its former local partner on the basis of "unfair competition." Very few of these cases ever made it to a Chinese court in the past because foreign companies had limited powers in China.

The firm being sued now, called 5+1 Werkhart International, is led by Liu Li, the former head of Woodhead's Chinese operations from 1999 to 2005. Woodhead alleges that Liu used its name to win commissions—then diverted these projects to a separate company. The Australian firm says that it learned of the scheme after clients began complaining about poor quality designs and shoddy drawings.

Woodhead fired Liu after learning of the alleged theft, but it claims that Liu's abuses didn't end there. For its Chinese operations, Woodhead had chosen the name "Wu He," an almost direct transliteration of its name. After being sacked, Liu established a firm called 5+1 Werkhart. Not coincidentally, Woodhead alleges, the words "five plus" are pronounced "wu he" in Mandarin.

"We believe it was a deliberate plan from day one to approach an Australian-based company in China to build up a little bit of trust and confidence and use that name to build up his personal credibility," says Geoffrey Lee, Woodhead's managing director. "It can happen to anyone—SOM, RTKL—all these guys. Small architects who are opportunistic can register RTKL in Shanghai or Guangzhou or Shenzhen, for example, and there is no legal requirement that you have any relationship with the company."

Liu could not be reached for comment. Arguments in the lawsuit were expected to begin last month.

In this and similar cases, the problem stems from the fact that until 2004, when China joined the World Trade Organization, foreign-based companies were not permitted to establish wholly owned foreign enterprises (WOFE). This restriction meant that they were required to seek a local business partner, some of whom proved more interested in profiting from their partners' names than in establishing legitimate businesses.

But things are changing. Current practices make it financially feasible for companies to establish WOFEs, and so large firms who have worked in China for many years, such as Perkins Eastman, are beginning to expand under these new rules. "Intellectual property rights protection has improved sharply in China in the past five years," observes Boris Armstrong Qi, a Shanghai lawyer who specializes in intellectual property law and represents Woodhead. "There is no prejudice against foreign companies, I don't believe it." *Andrew Yang*

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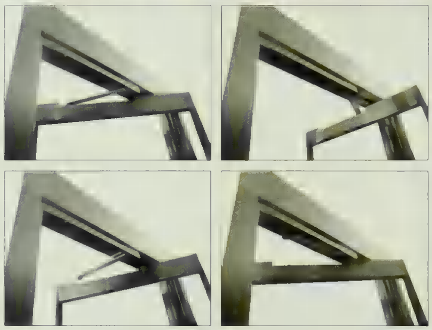

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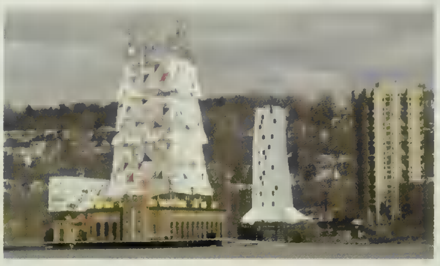
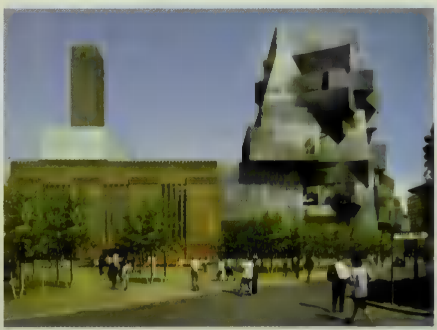
News Briefs

The British architect Will Alsop is making his U.S. debut in Yonkers, New York. Developer Remi Companies unveiled his scheme to convert an 80,000-square-foot disused power station on the Hudson River into 400 residential units and an art museum. "Good architecture does make a difference," Alsop said at a hearing in March. But community members expressed concern about the whimsical building's height. *C.J. Hughes*



The Kimbell Art Museum tapped Renzo Piano to design an expansion—a move that its April announcement touted as "predestined." Early in his career, the Italian architect worked for Louis I. Kahn, who designed the original structure that opened in 1972. But the 120,000-square-foot, Fort Worth museum is now unable to house both its permanent collection of Modern art as well as special exhibitions. The Kimbell purchased land for an expansion in 1998, but its initial plans met with controversy. *J.M.*

Herzog & de Meuron's addition to the Tate Modern, in London, won planning permission in March. When it opens in 2012, the new, 11-story tower, an off-kilter stack of glass boxes, will add 60 percent more space to the popular contemporary art gallery. Since opening in 2000, the Tate Modern has averaged 4 million visitors annually—double the predicted number. This is the Swiss architectural duo's second time working on the building, which occupies a converted 1930s-era power station. *Lucy Bullivant*



Metabolist pioneer Kisho Kurokawa entered Japanese politics this spring with a bid to become governor of Tokyo, a position equivalent to mayor. Although the architect placed fourth out of 14 in the April 8 election, his newly formed "Symbiosis New Party" will run candidates in national elections this July. Kurokawa's platform includes a controversial proposal to sell Tokyo's civic buildings, such as Kenzo Tange's City Hall. Curiously, he also suggests converting Raphael Viñoly's Tokyo International Forum into a hot spring. *Yuki Soloman*

Frank Gehry got his wish to expand the Weisman Art Museum, the institution announced in March. Gehry has always said that his original design for the 47,000-square-foot building, which opened in 1993, was unfinished. With its undulating stainless-steel forms that seem to tumble down a riverbank, the Weisman was the first of many museum commissions that helped cement Gehry's reputation as an architectural star. Work on a 11,000-square-foot addition is expected to begin later this year. Located on the University of Minnesota's Minneapolis campus, the museum specializes in 20th-century and contemporary art. *Bette Hammel*

ENDNOTES

- Italian officials selected Tadao Ando's design for a contemporary art museum in Venice, to be located in the 17th-century Punta della Dogana.
- Jean Nouvel bested 97 competitors to win the commission for a new, 2,400-seat orchestra hall in Paris, to be called the Philharmonie de Paris.
- The Serpentine Gallery, in London, postponed the German architect Frei Otto's design for a pavilion in favor of one by Kjetil Thorsen, of Snøhetta. This annual architecture installation opens in June.
- Jeff Speck leaves his post as the National Endowment for the Arts's director of design this month, after completing two two-year terms.
- Hitoshi Abe took the helm in April as chair of the University of California at Los Angeles's Department of Architecture and Urban Design.
- Buildings, not transportation, contribute 79 percent of New York City's carbon emissions, according to a first-of-its-kind pollution inventory meant to help the city cut emissions 30 percent by 2030.

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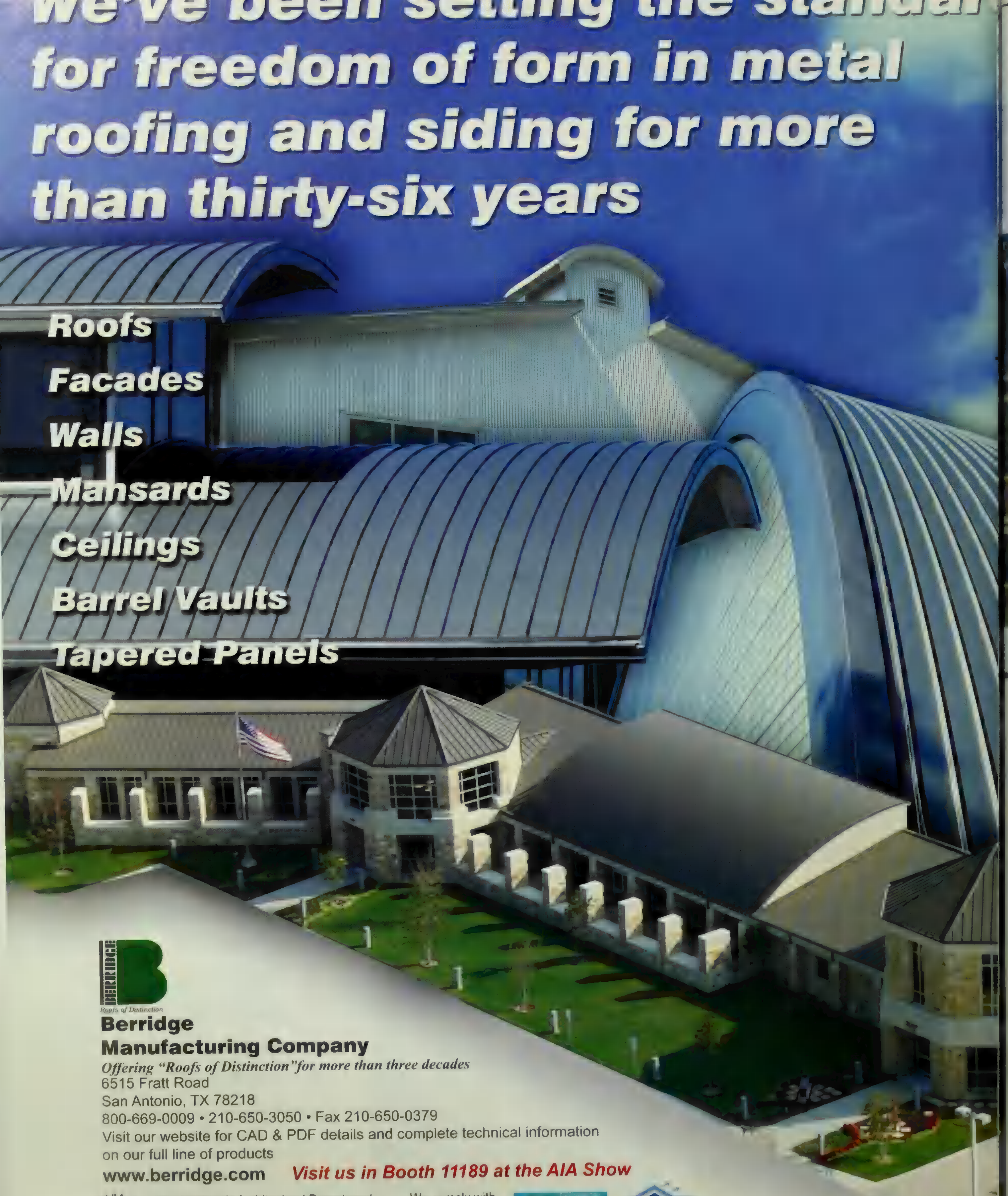
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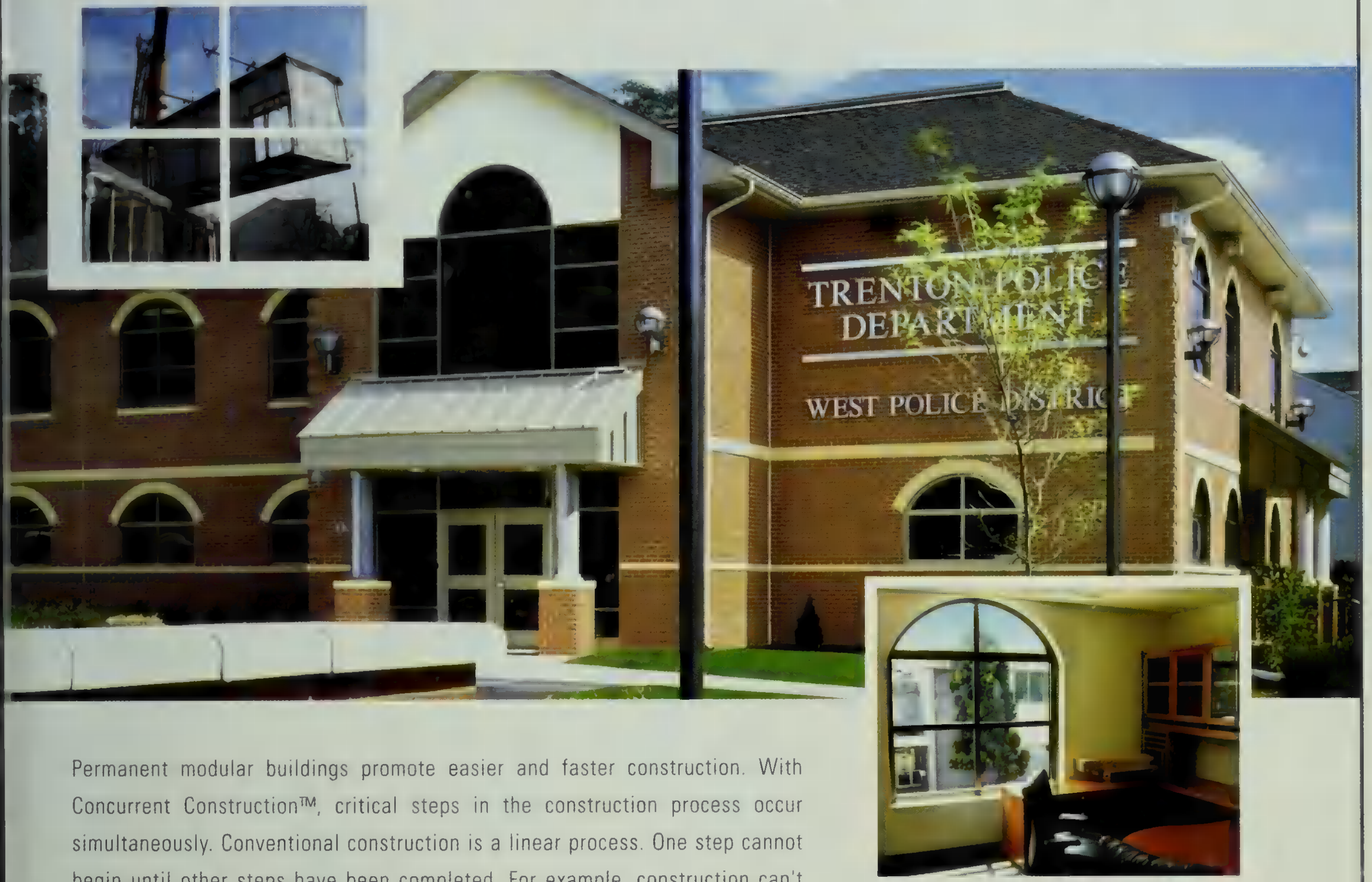

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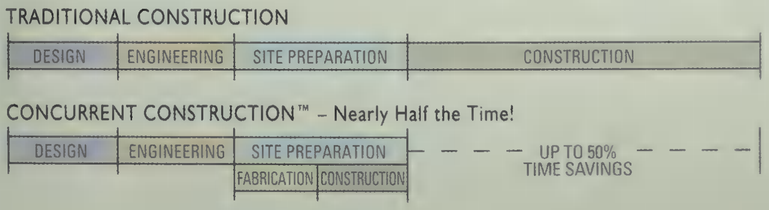

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Schinnerer organizes Office for Professional Liability Research, now known as the Risk Management Department, to analyze claims data.

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For and about the emerging architect

archrecord2

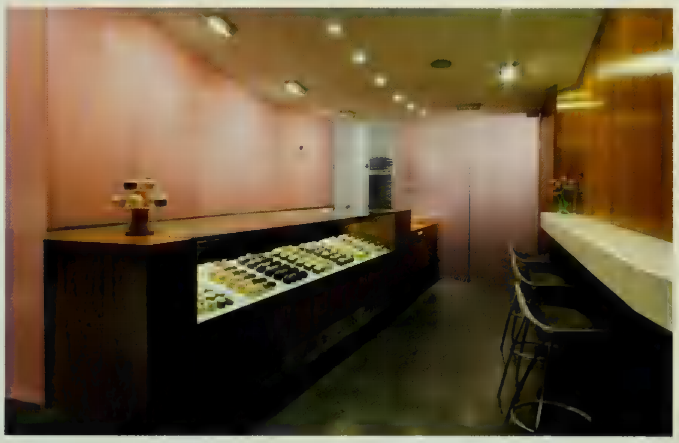
Trust in action. That's what the two archrecord2 candidates featured this month have in common. For David Montalba, it's about running a successful firm by trusting what he learned from multiple mentors—treating employees, collaborators, and clients right. For Leslie Thomas, who organized and curates the traveling exhibition *Darfur/Darfur*, it's a belief that beautifully presented imagery will move people to act—and to help find solutions to a grave humanitarian crisis. More at archrecord.construction.com/archrecord2.

Design

Montalba Architects: An optimistic approach

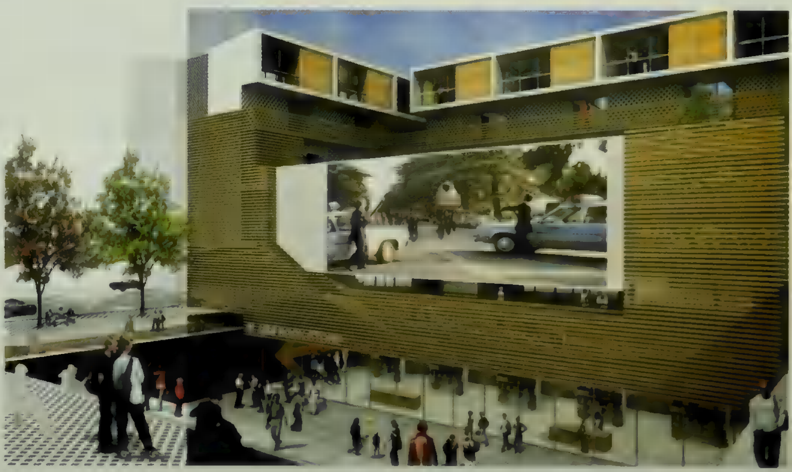
David Montalba, AIA, has done a lot and gained a lot of mentors in his scant 35 years on the planet. As well as working for several prominent Los Angeles–based architecture firms—Gehry Partners, Pugh+Scarpa, Daly Genik, among others—Montalba has succeeded in making a name for his three-year-old firm, Montalba Architects, in a region that is, well, lousy with quality architects. "It is difficult to establish a new practice and get clients when you've got Morphosis up the street and Frank Gehry around the corner," he says. "But somehow the nature of Los Angeles allows us all to coexist." It's that kind of optimism that has helped grow Montalba's client base from residential to retail, with civic and urban mixed-use projects ahead.

Montalba, who was born in Florence, Italy, and grew up in both Switzerland and Northern California, once dreamed of becoming a pro-surfer. Architecture won over waves, however. "My uncle is an architect in Switzerland, and my mother comes from a family of builders, so design was always in my life, and always invigorated me." Immersing himself in architecture, Montalba worked summers in architecture firms as he attended school at the New School of Architecture in San Diego, then finished his undergraduate degree at SCI-Arc's European program in Switzerland, and later earned a master's at UCLA. "The fact that I worked as I went to school really helped my understanding of how the practical and the theoretical aspects of design work together," he says. Connecting the two has led Montalba to be honest with materials, to use natural light to sculpt and design space, and to incorporate a certain restraint in his design (perhaps partly due to that Swiss influence). His values spill over from design into his practice. He started a firm with a partner after graduate school, but somehow it never gelled, so going out on his own seemed the right thing to do in 2004. Now with six



Kara's Cupcakes, San Francisco, 2006

Shifting planes and pink translucent glass define a boutique cupcake store.



Culver City Muse, Culver City, Calif., unbuilt

A cluster of mixed-use buildings with outdoor public space.

Venice Properties, Venice, Calif., 2005
A 2,000-square-foot series of art and work spaces organized around a central interior kitchen/conference area.

Octavia Parcspace Lofts, San Francisco, unbuilt
Extensions of park space along a revitalized boulevard fold up and into these two, 7,000-square-foot, mixed-use infill developments.

full-time staff and two part-timers, Montalba is able to balance family (he has a baby daughter) and work. "A small firm allows me to be client-service centered, design conscious, and treat my employees well," he says. He claims that giving his employees benefits and midyear bonuses has helped with that. "It's important to do things like that, because we're a very busy firm, and everybody is juggling a lot."

As well as his residential and retail projects, such as fashion designer Monique Lhuillier's two Los Angeles boutiques and the pastry shop Kara's Cupcakes in San Francisco, Montalba is looking to use his European connections to get clients overseas. "We do one Swiss competition a year," he says, "and one day I plan to collaborate with my uncle on something." Perhaps when he's not so busy with local projects, or with his roles as a member of the board of directors of the AIA Los Angeles and chair of its Academic Outreach Committee. The future? "I'm going to stay tuned," says Montalba. So will we. *Ingrid Spencer*

For additional photos and projects by Montalba Architects, go to **architecturalrecord.com/archrecord2/**.

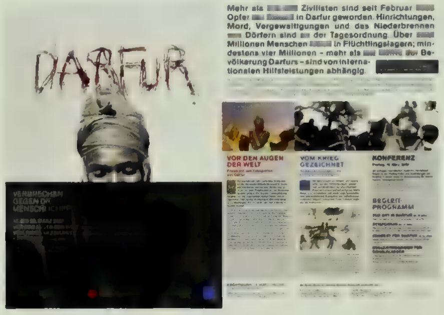
Work

An architect brings awareness to a crisis

Leslie Thomas, partner with the Chicago-based firms Larc Inc. and Larc Studio, wasn't one to jump on causes and preach about them. However, when the architect, mother, and Emmy-winning art director (for art direction of the 1999 HBO movie *Introducing Dorothy Dandridge*) saw a photo of a victimized child in a March 2006 *New York Times* article about the genocide in Darfur, she was changed. "I was holding my child, and I just thought, 'I have to do something about this.' " she says. After investigating the crisis in Darfur, where more than 300,000 people have been killed or injured by Sudanese government forces and militia groups since 2003, she sent an e-mail to everyone she knew. "I actually got some nice replies, and it made me think people might be interested in learning more about what was happening and what could be done about it," she says. Because Thomas had been so grabbed by a photograph, she thought other people would too. She spoke with a documentary filmmaker friend about the possibility of creating some sort of photographic installation, and after receiving positive feedback from the photographer who had taken the photo that initially spurred her call to action, *Darfur/Darfur* began to take shape. "The crisis was really only being presented on university campuses and in *Times* articles by Nicholas Kristof. I thought about how a strong message could go out to people using beautiful imagery in a museum setting." As an architect, Thomas knew the value of creating powerful environments. By getting museums involved, she knew she could work with their own architecture to present the photos in such a way that viewers would be both intrigued and enraged.

Despite discouragement from outsiders, and because of the encouragement of coworkers and friends ("It's people like Greg Doench, my partner in Larc Inc. and Larc Studio, who really picked up my slack," says Thomas), she kept on. Completely supported by donations and the pro bono work of everyone involved, the traveling exhibition uses high-quality projectors to show the work of eight photojournalists—three loops of 170 images over 6½ minutes—on the venues' walls, accompanied by traditional Sudanese music. The changing, digitally projected images provide visual education about the richly multicultural region while exposing the horrors of the ongoing crisis.

The installation has been shown at more than 10 venues so far, including the Hammer Museum in Los Angeles, the United States Holocaust Memorial Museum in Washington, D.C., the George Eastman House in Rochester, New York, and the Jewish Museum in Berlin. Speakers such as Mia Farrow and former United Nations Secretary General Kofi Annan have spoken at related events, which in the future will feature such luminaries as cellist Yo-Yo Ma. "I think people want to do good things," says Thomas, who has never been to Africa, "and when something stirs them, they will act. The images are beautiful, from a design perspective, and that may make people stop and look, and think, and write a letter or donate to a cause. Look at *Guernica*. Art can be about war, and can transcend distance and language to make a powerful statement." Thomas is currently working with Melcher Media to create a book about the project, to be published in September 2007. *I.S.*



Mehr als [illegible] Zivilisten sind seit Februar [illegible] Opfer [illegible] in Darfur geworden. Hinrichtungen, Mord, Vergewaltigungen und das Niederbrennen [illegible] Dörfern sind [illegible] der Tagesordnung. Über [illegible] Millionen Menschen [illegible] in Flüchtlingslagern; mindestens vier Millionen – mehr als [illegible] der Bevölkerung Darfurs – sind von internationalen Hilfsleistungen abhängig.

DARFUR
VOR DEN AUGEN DER WELT
VOM KRIEG GEZEICHNET
KONFERENZ
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In April 2007, Darfur/Darfur *was presented as an installation at Berlin's Jewish Museum (installation photo, top right; a flyer for the show, above).*

For information on Darfur/Darfur *and the work of Leslie Thomas's firms Larc Inc. and Larc Studio, go to* **architecturalrecord.com/archrecord2/**.

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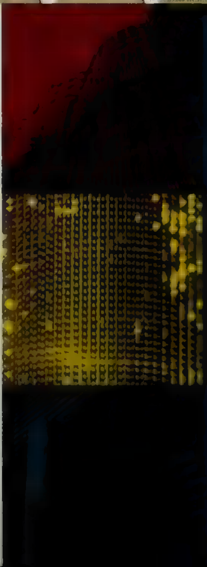

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Three years later: Does Gehry's Stata Center really work?

Critique

By Robert Campbell, FAIA

When Frank Gehry's Stata Center at MIT opened three years ago, it got a lot of press, especially for its novel appearance. I wrote at the time [RECORD, July 2004, page 61]: "It looks as if it's about to collapse. Columns tilt at scary angles. Walls teeter, swerve, and collide in random curves and angles. Materials change wherever you look: brick, mirror-surface steel, brushed aluminum, brightly colored paint, corrugated metal. Everything looks improvised, as if thrown up at the last moment." The Stata was even pictured in a *Doonsbury* comic strip, where a character calls it "pretty cool."

Then everybody forgot about it and moved on. There were fresher shocks to delight us. But the Stata, like any building, is more than a visual show. It's also a set of interior spaces where people study, play, socialize, and run experiments. The spaces either work or they don't. You can't make that judgment until a building has been around for a while.

So let's ask that simple question. Does the Stata work? Or is it merely an act of self-expression? Is it architectural sculpture? Or is it—to use a word that now sounds quaint—functional? What were its purposes, anyway?

The biggest goal for the project was to get MIT scientists—and that includes students—to meet one another. Too often, it was felt, they were holed up in isolated labs, apartments, and classrooms. Says Gehry: "The main problem I was given was that there are seven separate departments that never talk to each other. [But] when they talk to each other, if they get together, they synergize and and make things happen, and it's gangbusters."

The Stata, thus, was to be a mixing chamber. People would make connections. They'd begin to feel like members of a community. Barriers between disciplines would fall. Great minds would meet, copulate, and spawn brilliant ideas.

Two groups were to be the primary beneficiaries: computer sciences and artificial intelligence. Most of the people in the Stata are in one of those fields, figuring out how thinking takes place and how it can be improved and communicated, whether in a brain, a computer, a network, or a robot. Smaller groups at Stata are linguists, philosophers, and biologists who study DNA.

After a month of wandering the Stata's trackless and confusing floors (they are), and talking to its delighted inhabitants (they are), I'm ready to say: Yes, it does work. In the ways that count most, the Stata is a wonderful and astonishing building. Let's list its virtues. From here on, every comment in quotation marks was made to me by a Stata professor, researcher, student, or staff member.

The Stata is a building with lots of problems, inhabited by guys who love to solve problems. The MIT scientists would have been bored by a conventional building. Gehry gave them a building that needs to be solved. The floor plans are at first a mess, as noted. As you hunt down the person you're there to see, you feel like a rat looking for the cheese in a maze. Except for the ground floor "Student Street," there isn't—at first—any apparent order to the circulation.

The sculptural forms of the Stata Center make it stand out on the MIT campus.

But the scientists love the complexity. You just wander around till you get where you're going. "You may run into people and projects you knew nothing of," says one. Says another, joyful at the memory: "It took them a day to cut my furniture to fit the sloping and bending walls in my office." That was a problem, and he found a solution. Another likens his office to living in a work by Richard Serra. These are guys who like challenges. They like having to figure things out. Life in the Stata can be a continual brain game. (Okay, it might not suit everyone.) "Nine out of 10 faculty would say they are really pleased," notes one. "Everyone wants to say they're unconventional."

The Stata is fractal instead of linear. Three professors compared the floor plan to fractals. "We made a 3D graph," says one, "of all the research groups we'd like to sit next to. We found that you couldn't do that in only two dimensions." Gehry's plan, which everyone calls "neighborhoods," gets as close to that ideal as possible.

A neighborhood is a cluster of private offices opening off a shared space that one staffer calls a "town green." Usually the shared space is two stories high and often it's skylit, so the neighbor connections work both horizontally and vertically.

Research at Stata is group focused, and the groups come in many sizes. There are, therefore, many possible orders of magnitude. You can define your research zone as a whole floor, or as two or three neighborhoods, or as just one neighborhood, or maybe as just your own office and a share of its town green. This is what makes Stata fractal, the way it breaks down in steps from large clusters to small, each one of which, at every scale, can be thought of as a centered whole.

"You can't do that in a linear building, with rooms off a corridor," says one person. Another sees the plan as metaphor: "For a lot of the deep issues in computer science

Contributing editor Robert Campbell, FAIA, is the Pulitzer Prize–winning architecture critic for The Boston Globe.

here, linear analysis doesn't work."

Fractals *are* the Stata. No two places are exactly the same: "The lack of repetition animates the building." Coffee and whiteboards seem to be everywhere, and people casually join discussions as they navigate their way through the plan: "You run into people you might not have seen in years. I get lost all the time."

A voice of mild disagreement is that of Noam Chomsky, the linguist and political activist who is the Stata's best-known inhabitant. Chomsky's world isn't fractal. It's a conventional suite of offices. He says he never meets anyone by accident. He complains about his sloping wall, which means he can't put bookshelves on it and can't reach the sunshade in its window. He misses the squirrels that used to run around inside the walls of his old office. He says of the Stata, "I'm fine with it." But he works mostly at home.

The Student Street is a great architectural space. It's an indoor walkway that meanders through the Stata's ground floor. It's endlessly varied. Sometimes it's narrow, sometimes wide, sometimes high, sometimes low. Sunlight falls from high windows. Walls angle in and out, often in bright colors.

The Street is like the high street in a British village. Everything seems to connect with it. In the morning, professors climb stairs from the underground garage, stop for a cappuccino, then stride the Street to their elevators (the Street, wisely, is the sole pedestrian way out of the garage). At five o'clock, tots pile out of the day-care center to meet their parents. Undergrads in gym shorts head for the health club and pool. Classes spill regularly from lecture halls and classrooms. Student advocates push petitions or memberships. Visitors stare at the life-size porcelain cow, enthroned atop a coffee shop, that MIT student hackers once, um, liberated from a suburban steakhouse. "There's a random collection of tables where students flop and study. It's also a place to promenade." Students can plug in their laptops almost anywhere on the Street. "It's full of nooks and crannies where people stop and talk." The Street is a deliberate reinvention of MIT's famed "Infinite Corridor," the drab heart of the old campus. The Street is far better. And like any good public space, it's open day and night.

The building will never be finished. Says Gehry: "I'm happy when the building is forgiving enough so you can do things to it without destroying it. Put a new light where you want, knock out a wall." Says a Stata linguist: "Any kind of scientific work is always under construction, always still being built. When you publish a book or a paper it's never finished, it's just a step on the way to the next one."

It occurred to Gehry long ago that his buildings looked more interesting while they were under construction than when they were finished. Ever since, he's sought ways to give buildings that restless sense of something still happening. Nothing about the Stata feels finished. Since it opened, it's been in a constant state of minor modification, as the researchers fit it to their needs. The architecture is a metaphor for the science: always an open question, always a work in progress.

Not everyone loves the Stata's "unfinished" indoor materials, which are raw metal, glass, plywood, industrial lamps, exposed wires, and raw concrete. But they understand the motive, which is that Gehry wanted his building to feel like a warehouse, easy to change and rearrange.

The architecture recruits faculty. MIT's then-president, Chuck Vest, egged on by the dean of architecture and planning, Bill Mitchell, announced another Stata mission as follows: "I believe that the buildings at this extraordinary university should be as diverse, forward thinking, and audacious as the community they serve. They should stand as a metaphor for the ingenuity at work inside them."

Interiors provide a variety of spaces to gather.

As a principle, I regard this statement as moronic nonsense. It's like saying Einstein should have worn a crazy hat to express the fact that his brain was thinking audacious things. But many of the scientists disagree with me. They want to be in a building that proclaims how special they are:

"It's an icon for this age. It helps attract new faculty because it says we take risks." "The notion was that MIT needed an icon other than the dome." "It captures a sense of MIT's inventiveness and playfulness." "The building's funny shape and bizarreness kind of matches up with the work we do. It looks as strange outside as the strange stuff going on inside" "This is world-changing research, and if the building looks like it's leaping off the planet, so are we."

There's lots of wasted space. Another winning move is the amazing amount of unprogrammed space. An efficiency expert would call it a total waste. This is space that isn't anyone's turf. It's everywhere. It's the stuff of those "village greens" and generous elevator lounges. People grab it when they need it. A space may become the overflow site for some experiment. Or students may clutter it with a newly invented game, or an impromptu discussion or party. They eat and study anywhere and everywhere: "The undergraduates really mill in the building. Some of them walk in out of curiosity and end up working with us."

Because so much space isn't under anyone's direct supervision, the Stata feels free and relaxed. And the openness means that its parts are visible to one another: "People can be seen to be working." "You can see the building is alive. You can feel part of a community that is working hard. I used to have to go to a conference on the West Coast to find out what the guy next to me was working on." "There's connectivity. There are even windows in the fire stairs."

The skin-to-floor ratio is huge. There's a lot of exterior wall and roof in relation to the indoor floor area. The most efficient building, as any developer or architect knows, is the one with the lowest such ratio. But that depends on what you mean by efficiency. The more surface you have, the more windows and skylights you can get. Almost everywhere in this huge building, despite its wide floor plates, you feel in touch with the sky and sun.

It looks more like a car smashup than a building. From outside, the Stata doesn't look like one thing, it looks like a pile of unrelated parts that somehow got compacted together, like a John Chamberlain wrecked-car sculpture. As a result, big as the building is, it doesn't feel in the least controlling.

And in a move that reminds you of Charles Moore, Gehry scattered a bunch of brightly colored objects, looking like odd-shaped huts, across the building's numerous roofs. They are conference rooms. The scientists call them by the pet names the architects gave them—the Kiva, the Nose, the Helmet, and so on. In the largest, the Kiva, a third to a half of all visitors (including Gehry) get dizzy from the free-form walls. Some people have adjusted, others not. But most still like the pavilions: "The playfulness animates the environment. It reminds you of the student hacking."

The Stata has many faults that I'm ignoring, from early roof leaks (at least 50) to lack of acoustic privacy. But the faults pale next to the inventive virtues. I'll let Gehry have the last word. He likens the Stata to democracy itself and, well, to rabbinical bickering: "There is a growing model of urbanism in America, in the world, and I optimistically believe this has something to do with democracy. There's a pluralism and a collision of ideas, something almost Talmudic." ■

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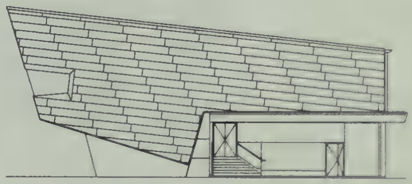

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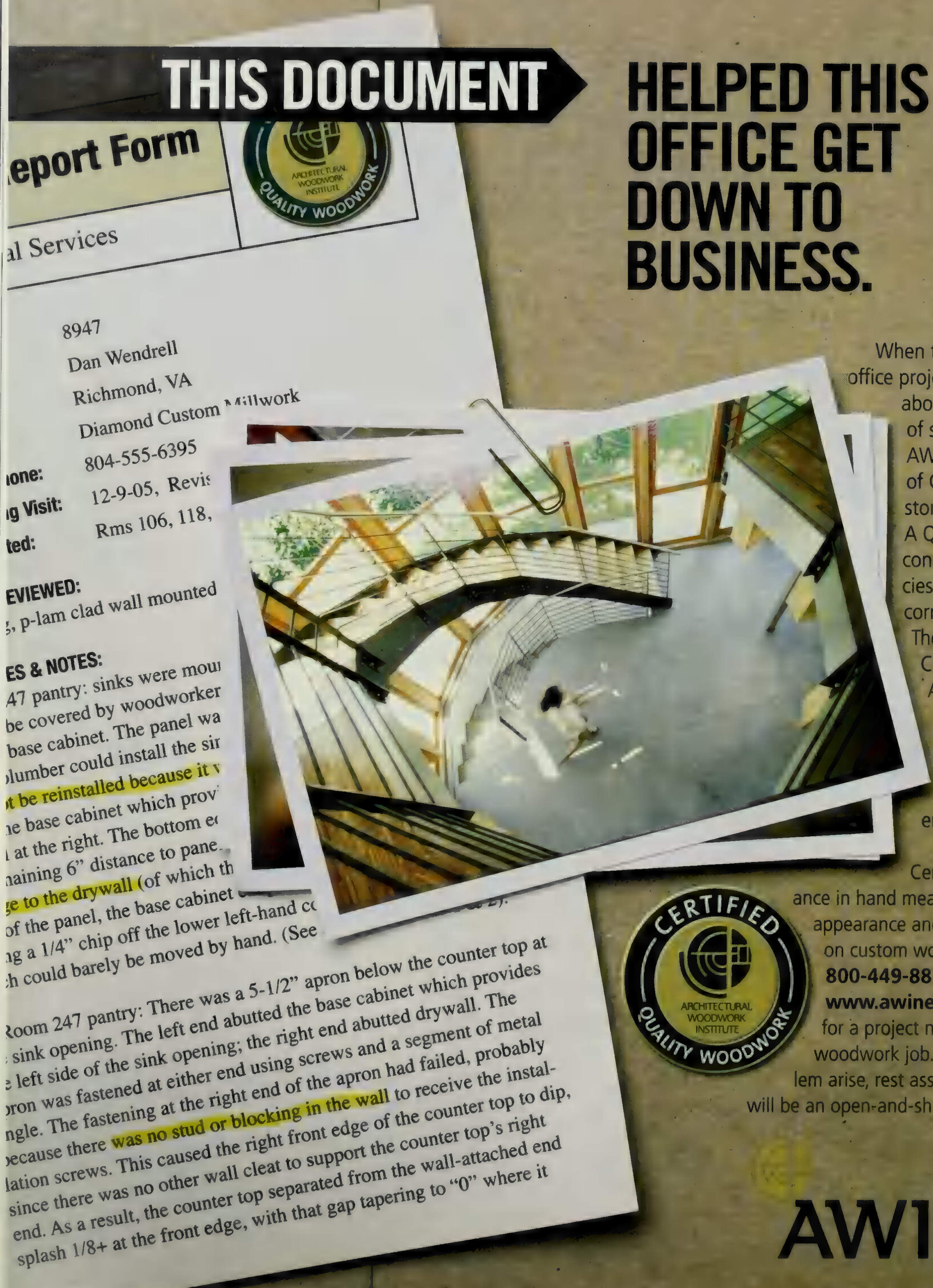
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Room 247 pantry: There was a 5-1/2" apron below the counter top at
sink opening. The left end abutted the base cabinet which provides
left side of the sink opening; the right end abutted drywall. The
ron was fastened at either end using screws and a segment of metal
ngle. The fastening at the right end of the apron had failed, probably
because there was no stud or blocking in the wall to receive the instal-
lation screws. This caused the right front edge of the counter top to dip,
since there was no other wall cleat to support the counter top's right
end. As a result, the counter top separated from the wall-attached end
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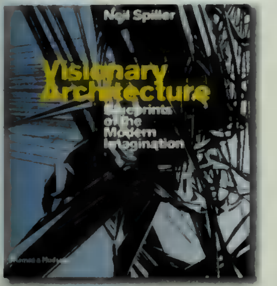
Futures past and present: the avant-garde then and now

Visionary Architecture: Blueprints of the Modern Imagination, *by Neil Spiller, New York: Thames & Hudson, 271 pages, 2007.*



The use of the obsolete word "blueprint" in the title of this sprawling and erudite history of postwar experimental architecture is a key to the book's spellbinding charm. Although U.K. architect and writer Spiller claims his history as "definitive," its modest size belies such a claim. Further, Spiller's definition of "experimental" and "visionary" architecture as construction (actual or virtual, built or unbuildable) that exemplifies the concept of architecture as a machine narrows his focus. But by tracing this orientation to ancient mysticism and limiting most of the text to U.K. architects only, he has created a very lively, unorthodox, backward-and-forward-looking perspective on lavishly imaginative, modern architectural thinking.

In keeping with the author's commitment to probing fantastic architecture built on a machine premise, the opening chapters focus on medieval and Renaissance mystical concepts that seem to foreshadow modern machinery and computers: alchemy, the memory theater, and Piranesi's dreamy architecture sketches. Central to Spiller's thesis is the idea that these ancient magical and mythical ideas can now be materialized, thanks to computer technology. Spiller intersperses his linear history of medieval-to-modern architectural visions with illuminating contemporary case studies from Diller+Scofidio, Asymptote, and Morphosis. His description of an environment by NOX, where boundaries between actual and virtual architecture are entertainingly blurred, underscores the alchemical metaphor of creating a seemingly impossible fusion of disparate elements, a building resembling a futuristic, Rube Goldberg contraption that shouldn't work, but does.

Because of Spiller's Anglophilia and machine-mania, Louis Kahn is given one sentence; Wright a few paragraphs; and visionary, vernacular architects who didn't think in terms of building-as-machine, such as Simon Rodia, are absent entirely. And environmental and economic concerns central to mainstream architecture are largely absent, too. Yet this is an inspiring book of dreams for all architects who watch with amazement as new technologies quickly transform yesterday's pipe dreams into today's realities. *Norman Weinstein*

The New Vision for the New Architecture, Czechoslovakia 1918–1938, *by Jaroslav Andel. Zurich: Scalo Verlag AG, 2006, 278 pages, $58.*

Central Europe is the forgotten region of the interwar period. This is true for social, political, and economic history as well as for the arts. It is especially true for architecture. There is no Gerrit Rietveld, Alvar Aalto, or Giuseppe Terragni to bolster the theoretical caché of ideas emanating from Prague or Budapest. Czechoslovakia did boast Karel Tiege, a Middle European equivalent of Italy's Massimo Bontempelli, or Holland's Theo van Doesburg, that is, a sophisticated, profound intellectual who influenced his contemporaries, including Le Corbusier. And architects like Bohuslav Fuchs are almost totally unknown in the West, despite the fact that his International Style buildings are exquisite, elegant, and as spatially complex as anything by Walter Gropius or J.J.P. Oud. Ironically, the most famous house of the period in Czechoslovakia, the Tugendhat, in Brno (1930), is by Mies van der Rohe.

This book may help restore the reputation of Czech Modernism. It is a beautifully produced collection of stunning black-and-white photographs of Modern architecture in Czechoslovakia, all taken during the 1920s and '30s. Collected, introduced, and explained by Jaroslav Andel, the tome is organized by building type. The photos are of spanking white architecture, as pristine as the Villa Savoye was in 1930, and some of these buildings are breathtakingly beautiful. A few are known to westerners, like the Bata store in Prague and the Vesna School in Brno, but many are new, at least to this reader.

The introduction is clear and concise, and brings out some chronological errors in the standard texts of the Modern Movement, implying an influence for Czech architects and writers previously unseen in the epoch. *Thomas Schumacher*

Architecture in Switzerland, *by Philip Jodidio. New York: Taschen, 2007, 192 pages, $24.95.*

It might surprise us that a book on contemporary Swiss architecture ranks among the first six in a new Taschen series. (The other five volumes are, more predictably, on current design in the U.S., the U.K., the Netherlands, Japan, and France.) Tiny and landlocked Switzerland has a smaller population than New Jersey and is only twice its size. Moreover, the nation divides along three geographic and linguistic areas: German, French, and Italian. Yet Switzerland as a whole has been uniquely committed to Modern architecture and has had the advantage of closely integrated engineering and architecture since the time of Robert Maillart (1872–1940), known for his innovative Alpine bridges. The face of Le Corbusier, thought of as French but born in Chaux-le-Fonds, Switzerland, appears on the 10-franc bill.

Architecture in Switzerland explores the work of Mario Botta, Peter Zumthor, and Herzog & de Meuron, as well as a younger generation, mostly protégés of the big three, including Davide Macullo and Aldo Celoria, Annette Gignon and Mike Guyer, and Philippe Rahm.

Jodidio also covers Santiago Calatrava who, though born in Spain, studied in Switzerland and opened his office in Zurich in 1981. Yet more questionable is the inclusion of Renzo Piano and Norman Foster, who have merely designed buildings in Switzerland—the Paul Klee Center in Bern by Piano and the Chesa Futura in St. Moritz by Foster.

Jodidio proceeds alphabetically—Botta, Calatrava, Ceoloria—representing each architect by two projects, a short biography, and contact information. No distinctions are made between masters and followers, which may be politically correct and easier for the author. Taschen and Jodidio brought out all six of the series' first 200-page volumes in the same year. So there was little time for appraisal or imagination, and it shows.
Andrea Oppenheimer Dean

NorCalMod: Icons of Northern California Modernism, *by Pierluigi Serraino; San Francisco: Chronicle Books, 2006, 288 pages, $35.*

The premise of Pierluigi Serraino's bountiful *NorCalMod* is that there's more to the Northern California region's 20th-century architecture than Bernard Maybeck and Sea Ranch. The years after World War II saw buildings that were as inventively "Modern" as anything associated with Los Angeles and Chicago.

Serraino's interest isn't that of the archivist; his crusade is to win attention and respect for this lost strand of architectural culture, or at least give such long-neglected designers as Donald Olsen and Beverley Thorne their due. It's a fascinating story: architects who migrated to the Bay Area for the same reason as anyone else (the seductive blend of nature and urbanity) found themselves in the spotlight when Lewis Mumford used his *New Yorker* column in 1947 to proclaim the existence of a "Bay Regional Style." Mumford's benediction sparked local debate—did such a thing even exist?—but it became the organizing principle by which Northern California's 20th-century architecture is organized. And almost by default, the buildings that didn't reinforce the notion of soft woodsy Modernism fell from posterity's sight.

That alone is enough for a book—but Serraino's laudable determination to fill in the blanks and right the wrongs strays in every imaginable direction. There's a chapter on architectural photography in the region and lengthy interviews with surviving architects from the postwar era. He analyzes at length how buildings drift into obscurity: Even a failure to catalog negatives can be a culprit, since it can prevent scholars from tracking down the initial images of a building.

There's a contemporary hook, as well. Serraino argues that the region's neglected Modernist tradition has made it difficult for innovative architecture to make a comeback in today's San Francisco.

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"Memory loss comes at a price," he writes. "Younger practitioners in Northern California today find it impossible to claim other forms of Modernism as part of their design ancestry because these projects are unavailable—in fact, often invisible."

Put this all together and you've got too much, at least in terms of a focused narrative. But this is a labor of love, an effort to capture the flickering proof of what was. The prose is clear and the black-and-white photos from the era shine. In an odd way, *NorCalMod* is an act of historical preservation—and the result is of real value. *John King*

Towards a New Museum: Expanded Edition, *by Victoria Newhouse. New York: Monacelli, 2006, 336 pages, $50.*

Like a handbook for a very rarified profession, Victoria Newhouse's *Towards A New Museum* is a ubiquitous presence on the bookshelves of both museum builders and their architects. It is a reminder that this 1998 book, reissued now in an expanded edition, remains the best analysis of the current wave of museum architecture. No doubt it has even helped the phenomenon along. Just as museums ask visitors to consider their environment with a heightened intensity, this book reconnects architecture with its audience, which is to say with us. Many serious design books dwell on craft and tectonics—architects' architecture. But *A New Museum* takes a slight step back, judging architecture primarily by its capacity for pleasure, and inviting us to do the same. Newhouse thrills in the successes and failures of each museum, reminding us of the delightful human extravagance of the building type (and of art itself).

The original edition used a taxonomy of museum types—such as "The Museum as Sacred Space" or "The Museum as Entertainment"—and critical essays on selected projects to show how museums had changed in the 20th century, and particularly in the past 30 years, both architecturally and as a societal reflection. The new edition is a welcome chance to update the scorecard. When the book was first published, the Getty and Guggenheim (Bilbao) were dueling for the soul of the new museum. With that bout long ago decided, Newhouse adds recently completed projects to each museum type, and an entirely new chapter of critical essays on a dozen new buildings. She chooses a new pair to lead us into the future—Herzog & de Meuron's de Young in San Francisco and SANAA's 21st Century Museum of Contemporary Art in Kanazawa, Japan—but more striking is one particular take-down of the recent past. In 1998, the charrette for a new Museum of Modern Art in New York seemed like a thrilling opportunity; in 2006, she uses Taniguchi's building as a punching bag for the worst aspect of what she terms "The Museum as Entertainment." She writes, "MoMA, like most large art museums today, has exchanged the aura of culture for that of entertainment and corporate efficiency."

But unfortunately, she has a moving target on her hands. Just after the book was released, news arrived of what seems likely to herald the next era of museum architecture: the cultural Xanadu of Saadiyat Island, just off the coast of Abu Dhabi, where Gehry, Ando, and Nouvel will build their mega-museum projects. That will have to wait for the next edition. *Andrew Blum*

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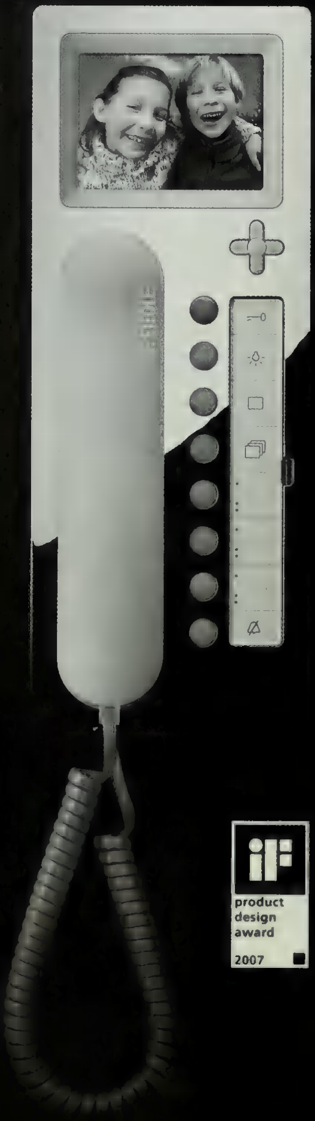

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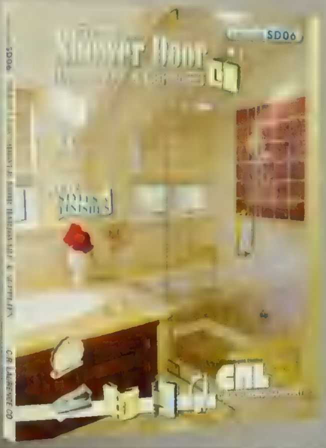

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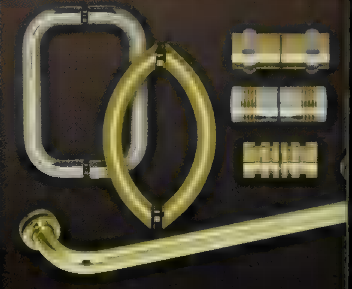

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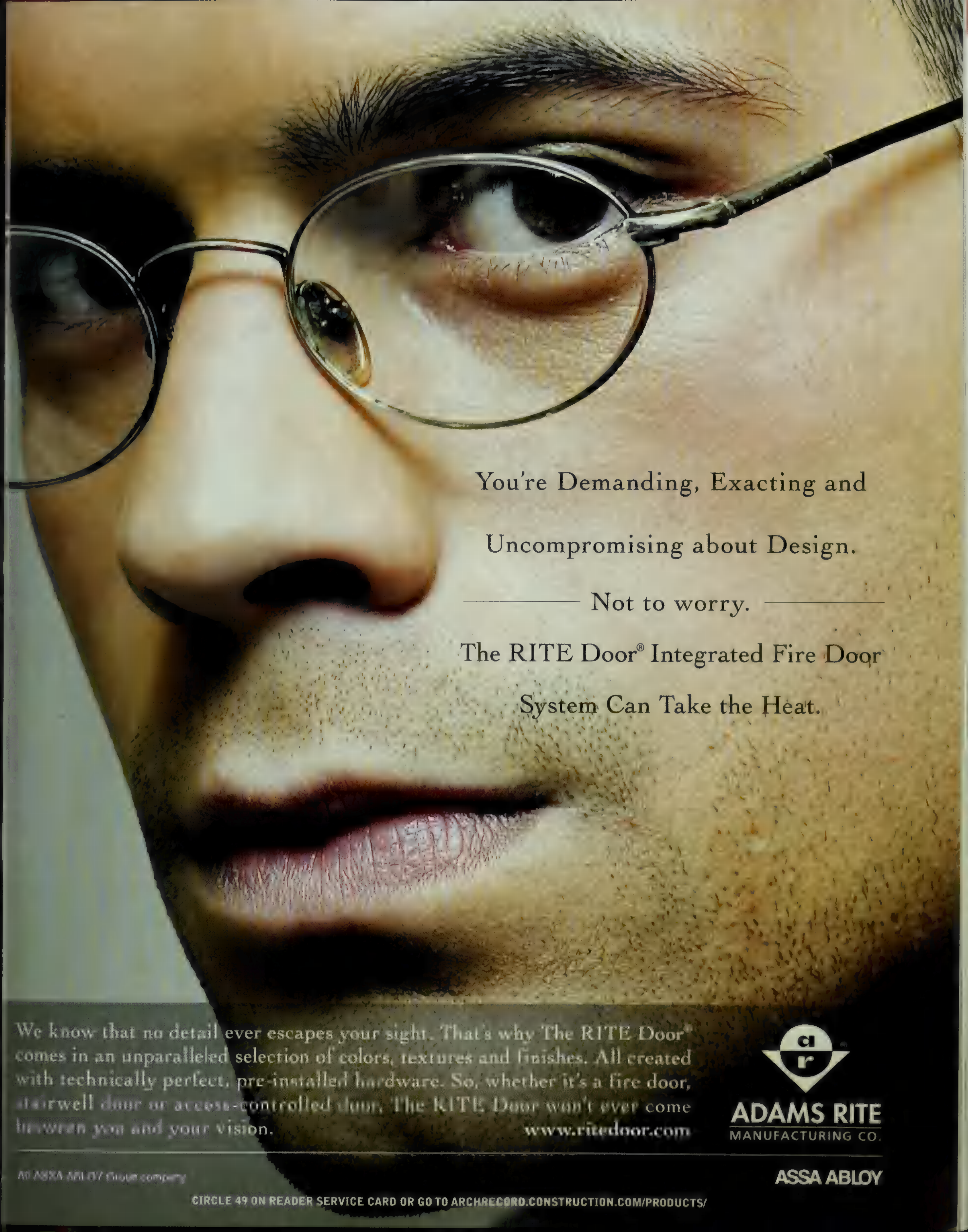
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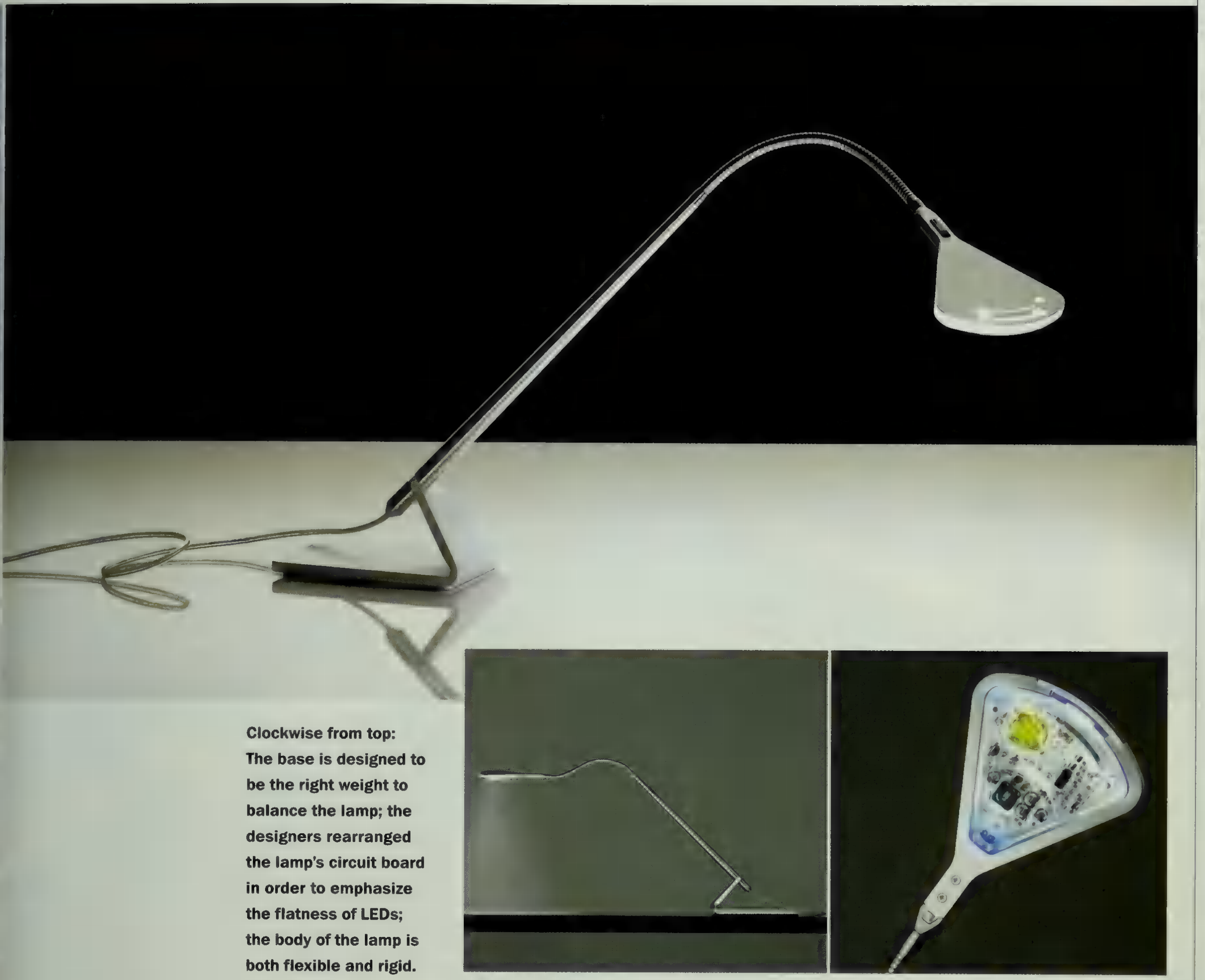

Clockwise from top: The base is designed to be the right weight to balance the lamp; the designers rearranged the lamp's circuit board in order to emphasize the flatness of LEDs; the body of the lamp is both flexible and rigid.

By Rita Catinella Orrell

Mixing it up to keep an LED reading lamp slim

Milan-based engineer Alberto Meda and architect Paolo Rizzatto took a new approach to the traditional look of the electronic circuit board while designing the Mix reading lamp for Luceplan. "We tried to change the distribution of the components, as in urban planning," says Meda, who is based in Milan along with Rizzatto. "In the end we had a circuit that looked like a garden city." To get the minimum thickness required for the design, they moved condensers and memory files toward the back "as if they were skyscrapers," leaving more space on the circuit board for logic-based devices, which appear "like single-family homes." This new arrangement allows for an ultra-slim head that houses the LEDs, a control lens, a heat sink, and a rotating filter that regulates color temperature. A graceful base holds a rigid conical tube and an attached flexible neck without "breaking the continuity of the cable," says Meda. Available in a table and wall version, Mix offers low energy consumption and a 50,000 hour life. When it's off, the lamp continues to make a statement, as its head softly glows with blue light. Luceplan USA, New York City. www.luceplanusa.com **CIRCLE 200**

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Trade Show Review Stockholm • Stockholm Furniture Fair

The Stockholm Furniture Fair is gaining international prominence. This year's February event hosted almost 41,000 visitors from around the world and served as a launch pad for the Nordic countries' most prestigious manufacturers, such as Swedese and fjordfiesta. For more evidence of the event's global stature, the goods on display this year defied the "Scandinavian Modern" stereotypes of clean lines and natural materials. *David Sokol*

Imported Talent

Many foreign designers received commissions from large manufacturers or came to peddle their own wares, demonstrating that Scandinavian inspiration is easily adapted to the world stage.

1 Pick-up sticks The ItoMaki table, designed by Swedish-born, Japanese-trained Dan Sunaga, features an inventive expandable base. When pushed inward to achieve the diameter of a side table, this web of interlocking wood pieces also rises to the appropriate height; pulled outward, it widens and lowers to coffee-table dimensions. Karl Andersson & Söner, Huskvarna, Sweden. www.karl-andersson.se **CIRCLE 202**

2 Can you hear me now? The Sticks felt-covered panels were designed by Jean-Marie Massaud as part of the Soundwave series of acoustical buffers. All Soundwave products are designed to absorb light, high-frequency noise at 500 Hz and above. Offecct, Tibro, Sweden. www.offecct.se **CIRCLE 201**

3 La Chapelle's show The table base of the La Chapelle Big dining table by Parisian Inga Sempé features an abstracted trumpet form comprising thin steel ribbons inserted into a plywood ring, and shoulders a lacquered oval top. David design, Malmö, Sweden. www.david.se **CIRCLE 204**

4 Fits like a glove Brits Edward Barber and Jay Osgerby went haute couture with Glove, a felt easy chair that features a wrist-like tapered base and a fabric or sheepskin trim. Swedese Möbler, Vaggeryd, Sweden. www.swedese.com **CIRCLE 203**

5 Tactile tambourines Japanese textile/fashion designer Akira Minagawa is known for his minä perhonen clothing line, which he says is not tied to fashion cycles. For Kvadrat, he created Tambourine, a pattern with rows of circles embroidered on upholstery fabric. Kvadrat, Ebeltoft, Denmark. www.kvadrat.dk **CIRCLE 205**

6 Child's play The Antropomorfo seating group by Danish designer Stine Gam and Italian designer Enrice Fratesi realizes a child's out-of-proportion drawings of furniture in a combination of oak, beech, and walnut covered in felt. GAMplusFRATESI, Pesaro, Italy. www.gamplusfratesi.com **CIRCLE 206**

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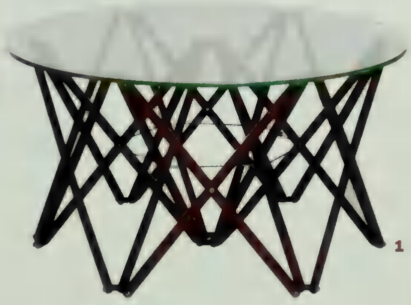

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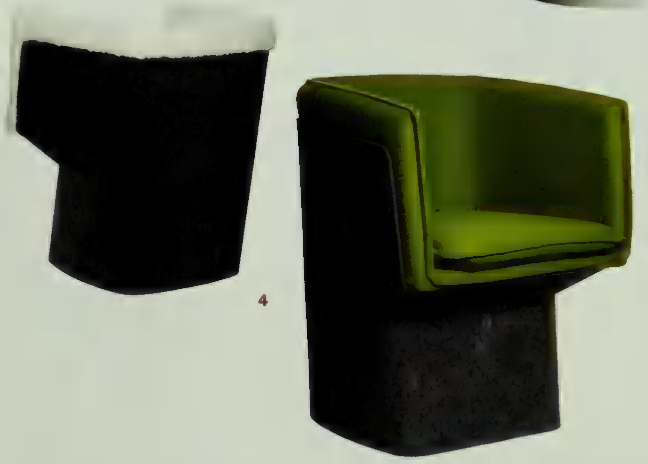

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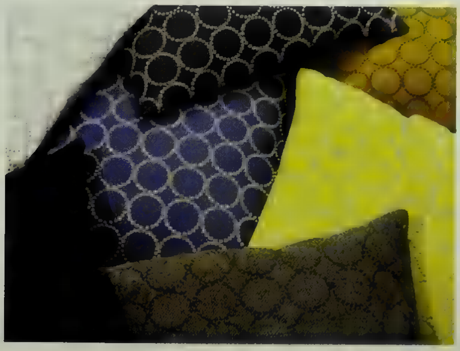

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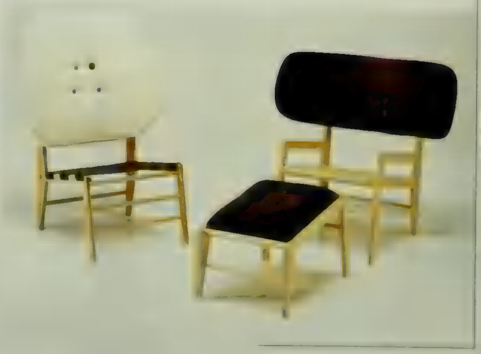

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Something Extra

While each of these pieces is eye-catchingly Minimalist, they include an additional feature that will stick in your memory for its humor, quirkiness, or sensuality.

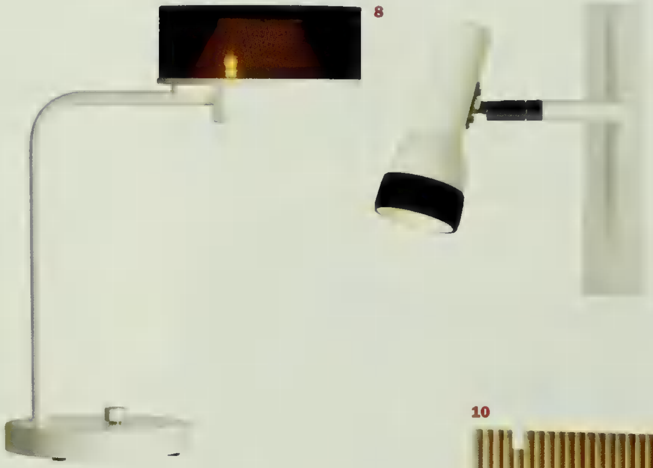
7 Blowing in the wind The Breeze table designed by Monica Förster features a simple circular wood top—except for a pie slice that appears to be rippling in a gust—on a tubular steel frame. The Hightower Group, New York City. www.hightoweraccess.com **CIRCLE 207**

8 Stretch Armstrong Because the hooks of Thomas Bernstrand's Gobble coat stand are attached to elastic bands, the shape of the rack changes according to the number of garments you pile on it. Materia, Tranås, Sweden. www.materia.se **CIRCLE 208**

9 Talk to her The up-and-coming architects of the Stockholm-based firm Marge recently completed the interiors for the Rica Talk Hotel located on the Stockholm fairgrounds. The Talk wall bracket and table lamp are among the custom designs originally created for the hotel, and are now in production by Örsjö. The fixtures include hidden delights—such as the wall bracket's leather ring or the table lamp's asymmetrical glow—that are meant to inspire conversation between visitors. North American electrification available by custom order. Örsjö Belysning, Örsjö, Sweden. www.orsjo.com **CIRCLE 209**

10 Divided we sit Cylindrical pieces of beech or ash are glued in long series to create Outline, a modular screen system that cordons off straight and curvy enclosures for office uses. Damian Williamson's design also includes small slits, like the *meurtrière* openings in a turret, that permit a peek at neighbors. Gärsnäs, Stockholm. www.garsnas.se **CIRCLE 210**

11 Bling it on Designers Josefin Hagberg and Marie-Louise Gustafsson elevate the common parking lot divider to urban-scale jewelry with Bling. Unassuming bollards are connected by glittering swags of interlocking stainless-steel squares. Nola Industrier, Stockholm. www.nola.se **CIRCLE 211**



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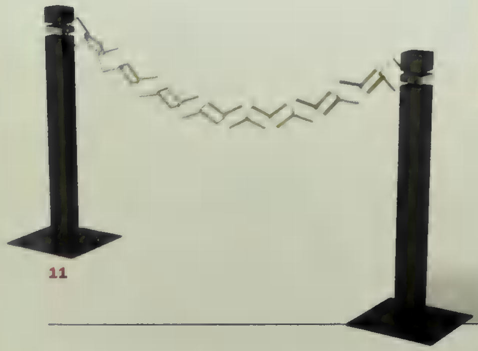

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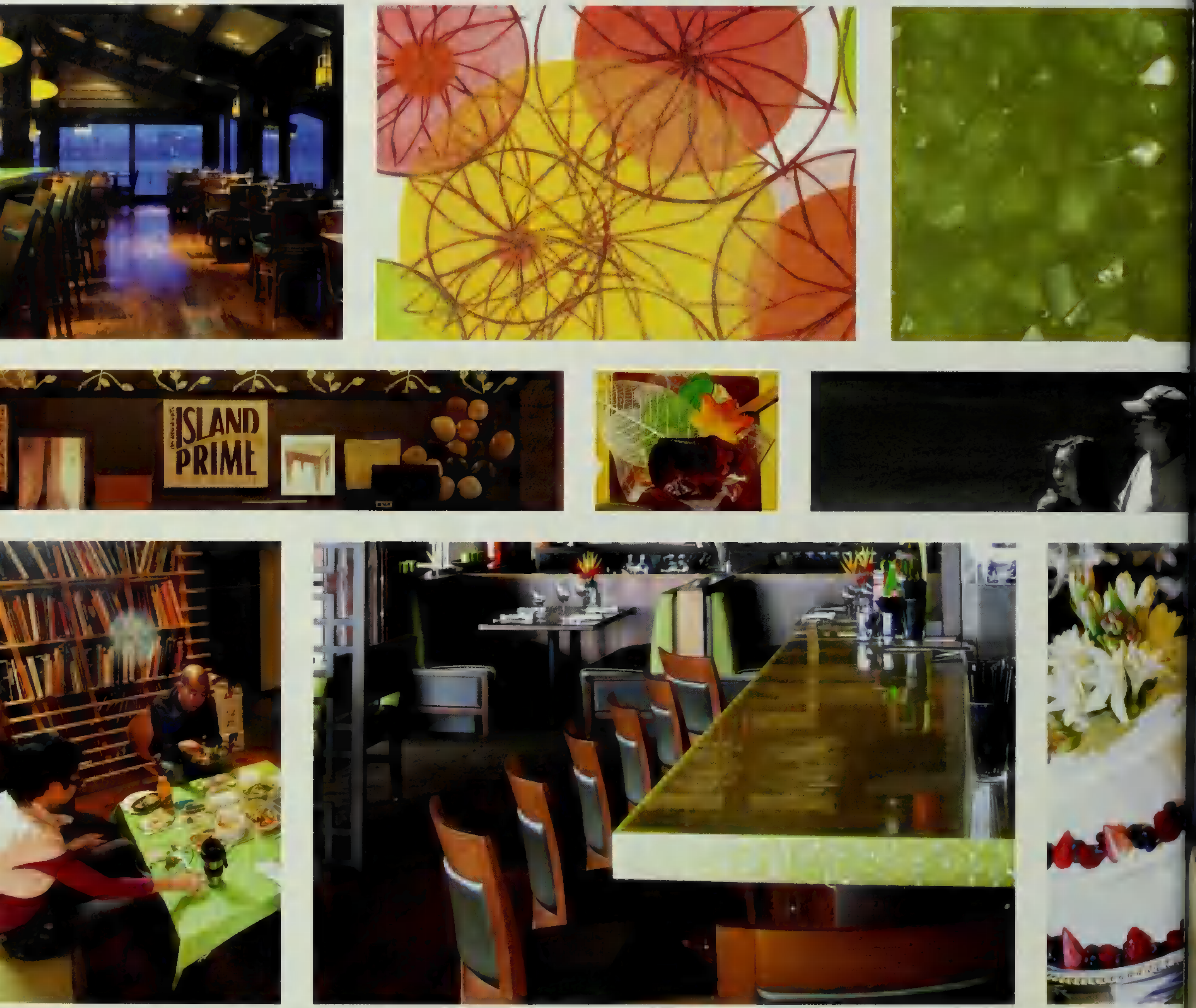

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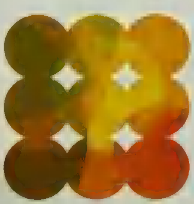

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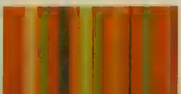

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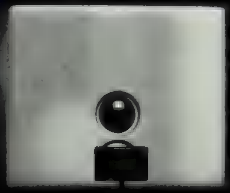

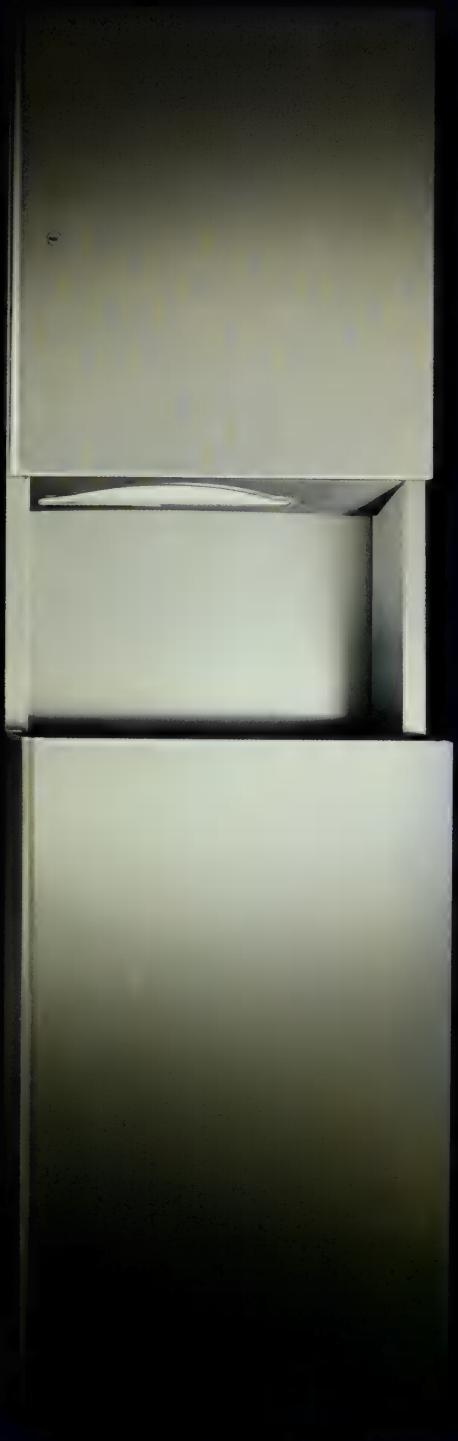

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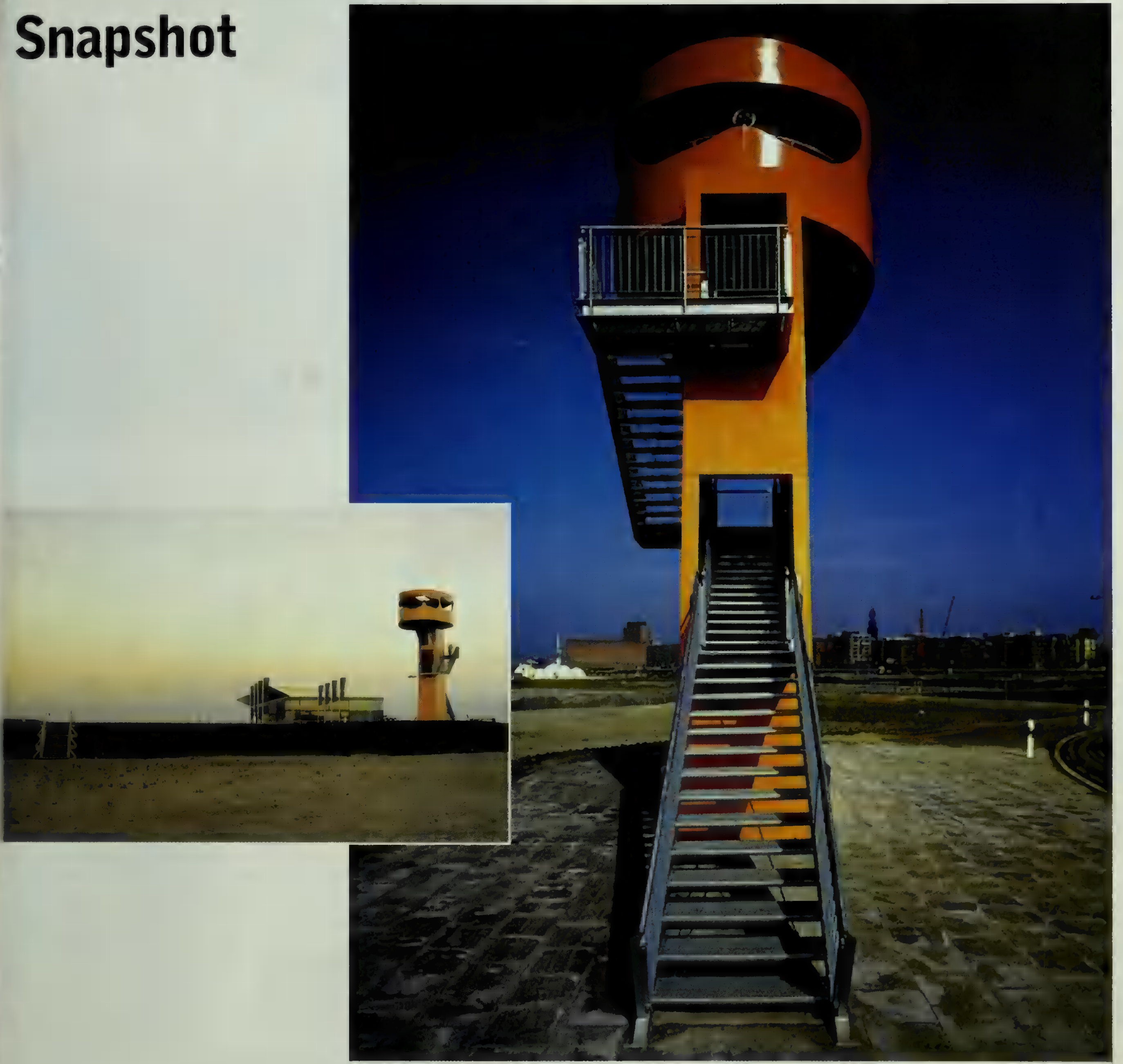
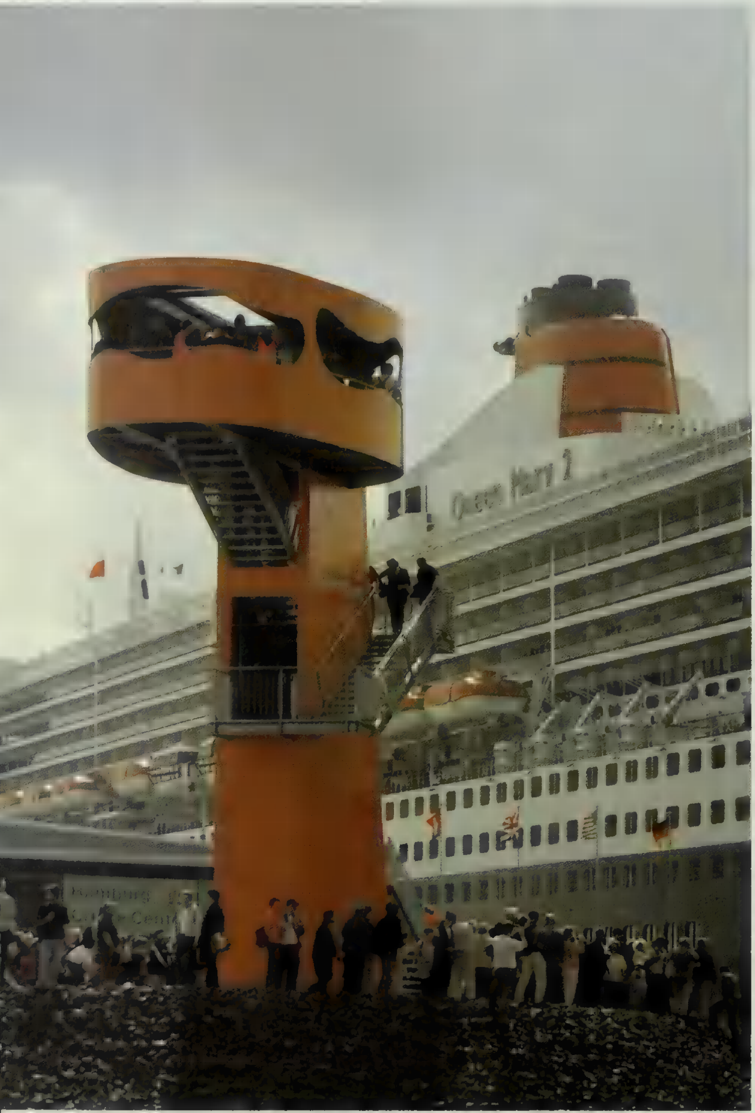


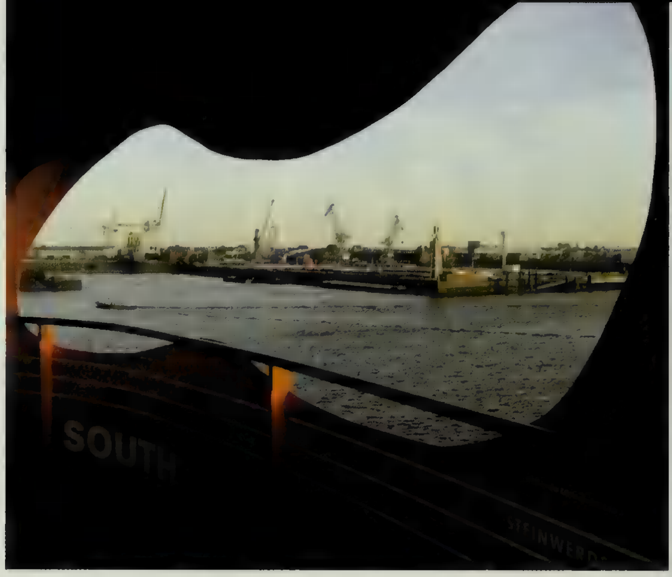
By Christopher Kieran

Casting anchor in the Hamburg Harbor

Peeking out from a new harbor area development in Hamburg, Germany, s an unusual sort of periscope—the HafenCity View Point.

Currently the largest urban development project in Europe, HafenCity is a 383-acre conversion of centrally ocated, former industrial space, which will increase the area of the city center by 40 percent, adding 12,000 new occupants and 40,000 new jobs. When HafenCity Hamburg GmbH developers approached the architects at Hamburg-based Renner Hainke Wirth (RHW) in 2004, they requested several temporary platforms from which residents and tourists could watch the city grow and welcome cruise ships as they enter the harbor with fireworks displays. Skirting redundancy, RHW hatched a plan to create just one viewing platform that could be disassembled and moved from site to site.





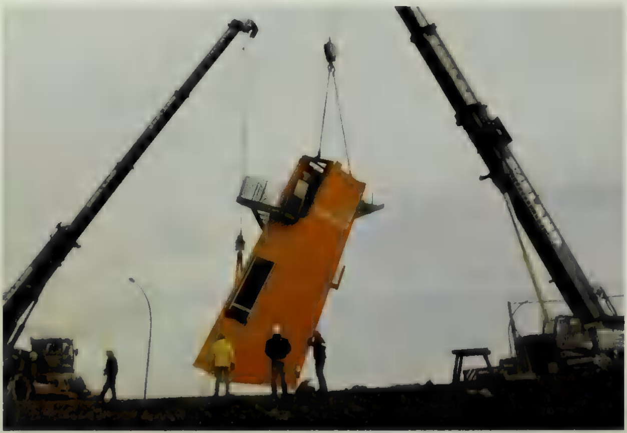
The architect's initial inspiration came from the cranes that commonly pierce the flat expanse of the harbor. Reflecting this source, the View Point's long neck and bright orange color are sufficiently giraffelike to match the industrial equipment that set it in place. But RHW principal Karin Renner admits the tower looks and acts more like a submarine's periscope. Of course, the metaphorical connections to the harbor don't end there.

Two months in planning and six weeks in execution, the 12-ton steel View Point was assembled by Altenwerder Schiffswerft, a Hamburg Harbor–based shipyard steel company. The proximity enabled prewelding of parts in the workshop, avoiding many site work complications. Disassembly is similarly straightforward. The View Point consists of three major elements: a rounded head, a tower shaft, and a 16-by-26-foot concrete block foundation. The sections can be screwed apart and lifted by crane, piece by piece, onto a truck, then transported and reassembled at a new site.

The area around the View Point lacks identity—and, for that matter, inhabitants. Renner wanted to create a bold visual statement to anchor the sparse territory. "It is important for the View Point to have this loose shape," says Renner, who designed wavy, amoebalike view openings in the platform to avoid giving the impression of a shipyard survey tower. "But at the same time," she notes, "it needs color and form that are strong because there is nothing out there between city and 'not-city.' "

Renner's effort to create a cultural attraction have been successful. A theater group has begun performing around the structure (the recent relocation of which may have lent new meaning to the term "traveling theater troupe"). And the tower's future looks bright. With a smart tactic for disassembly, it will never need to end up rubble in a landfill—it can just be reassembled somewhere else. Given the strong positive response it has received in Hamburg, it does not look like the View Point will be leaving the harbor anytime soon. ■

The View Point overlooks the developing Hamburg Harbor (top), where people welcome cruise ships (above). Its detachable components can be reassembled at various sites (right).



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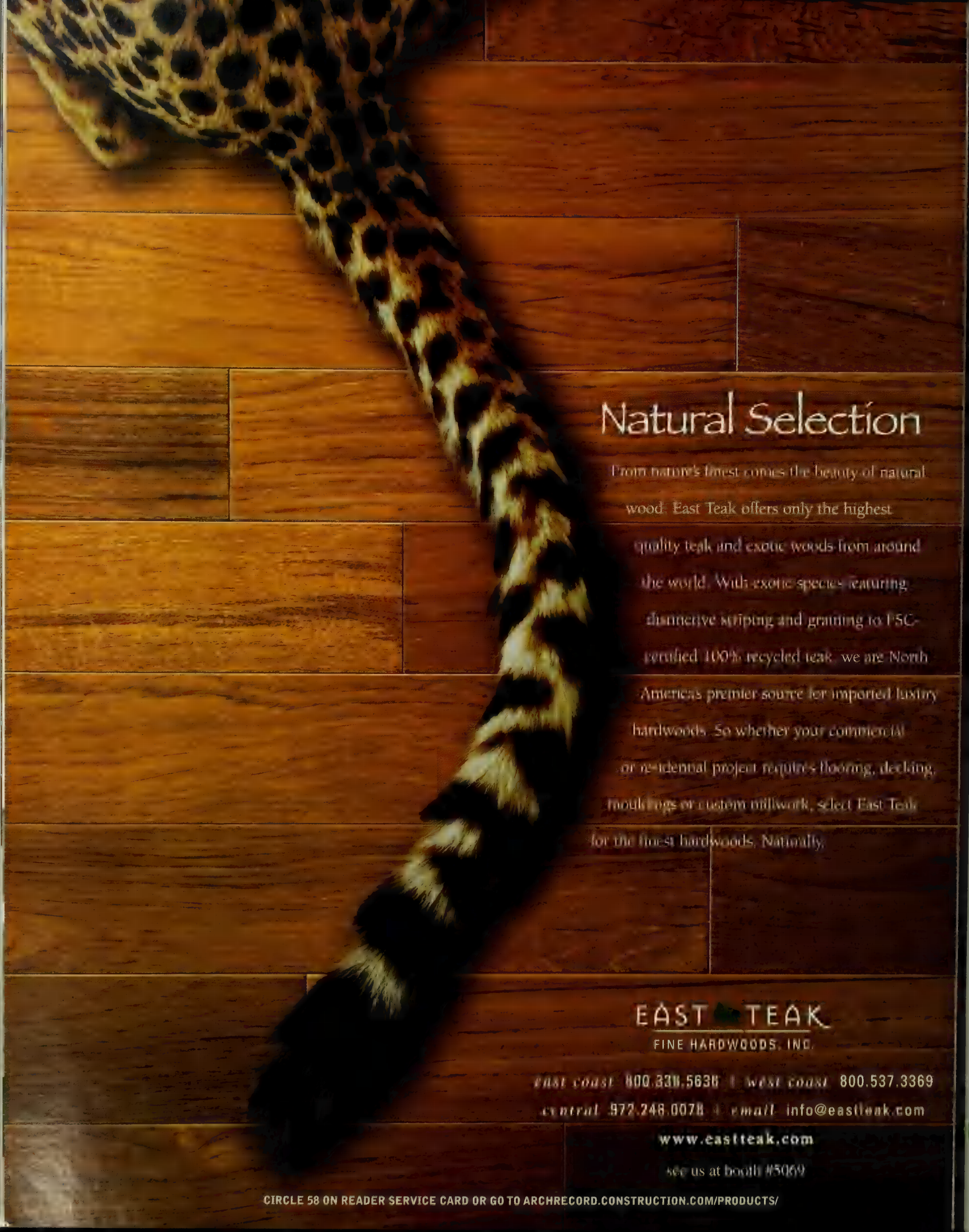

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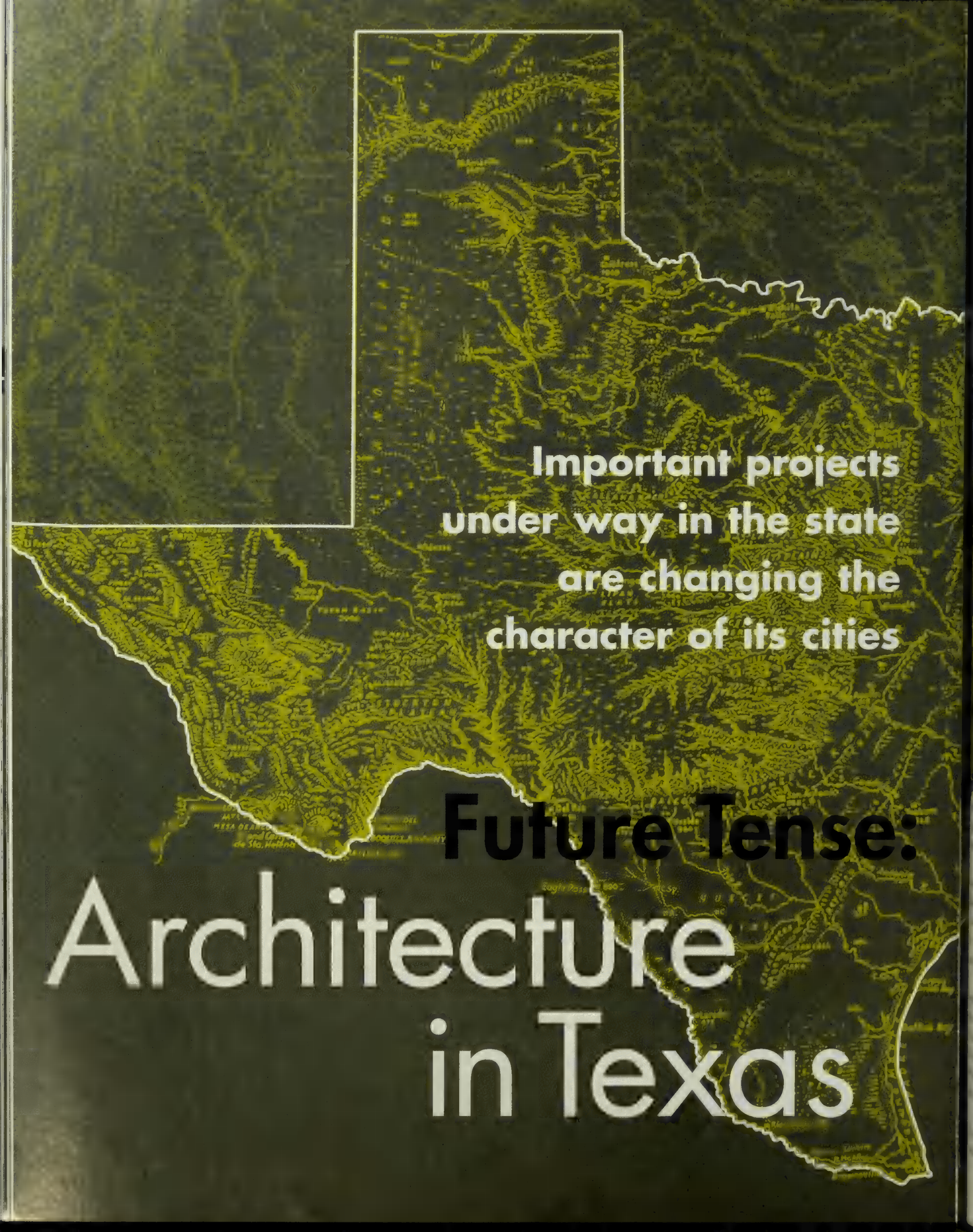


Important projects under way in the state are changing the character of its cities

Future Tense: Architecture in Texas

In downtown Dallas, developer Ross Perot, Jr., is building a $3 billion complex called Victory Park, which will include ■ 33-story W Hotel and Residences (left), designed by HKS Architects, and ■ 43-story tower with offices, condos, and a Mandarin Oriental Hotel (right), designed by Kohn Pedersen Fox. The ambitious complex will also offer high-end shops and restaurants and about six residential blocks.

By David Dillon

Three of the 10 largest cities in America are in Texas, with a fourth closing in fast. Yet when we think of Texas, we don't usually think of density and urbanity, tight congeries of streets, blocks and squares. We think of freeways and sprawl, of enveloping skies and infinite horizons, of glittering architectural objects floating in seas of space, gems without appropriate settings. "Anything goes" is the apothegm that pops to mind.

That Texas still exists, of course, more swaggering than ever in many places, yet amid all the entrepreneurial excess, we now also find light-rail stations with elaborate mixed-use appendages, downtown housing of all types—some of it even affordable—and a flurry of new parks and greenbelts for an expanding public realm that Texans have largely ignored in the past.

Dallas is not about to turn into Manhattan; yet along with Houston, San Antonio, and Austin, it is rethinking its "sky's the limit" development attitude, prodded by $75-a-barrel oil, 2-hour commutes, and tough air-pollution mandates from Washington. The themes of Dallas's first-ever Comprehensive Plan, approved in 2006, are density, mobility, and connectivity, the staples of smart growth, which, if they haven't become official policy, are at least getting serious attention around the state. One thing that hasn't changed is scale.

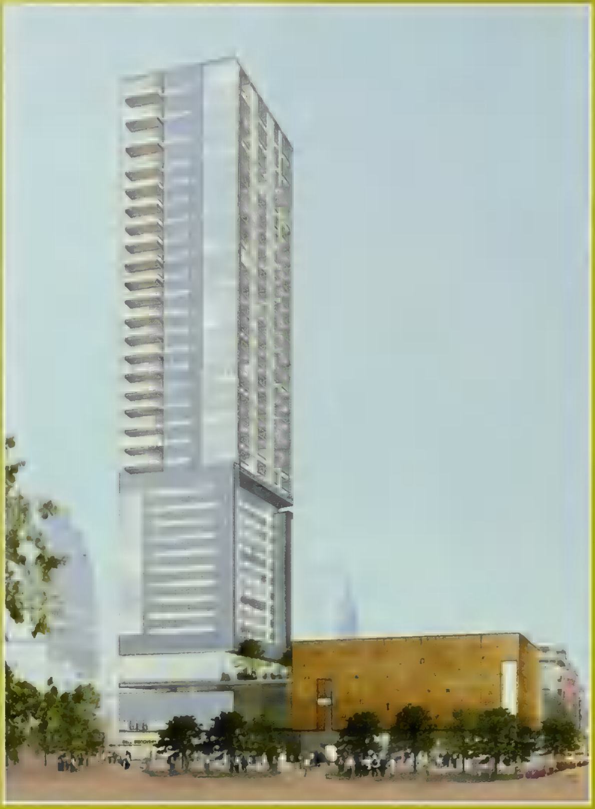
Victory Park, Ross Perot, Jr.'s $3 billion island of entitlement in downtown Dallas, consists of a 33-story W Hotel and Residences (designed by HKS Architects), a companion 43-story hotel/condo/office tower by Kohn Pedersen Fox, a half dozen residential blocks, including one by Philippe Starck, plus dozens of chic shops and restaurants for hip professionals on the make.

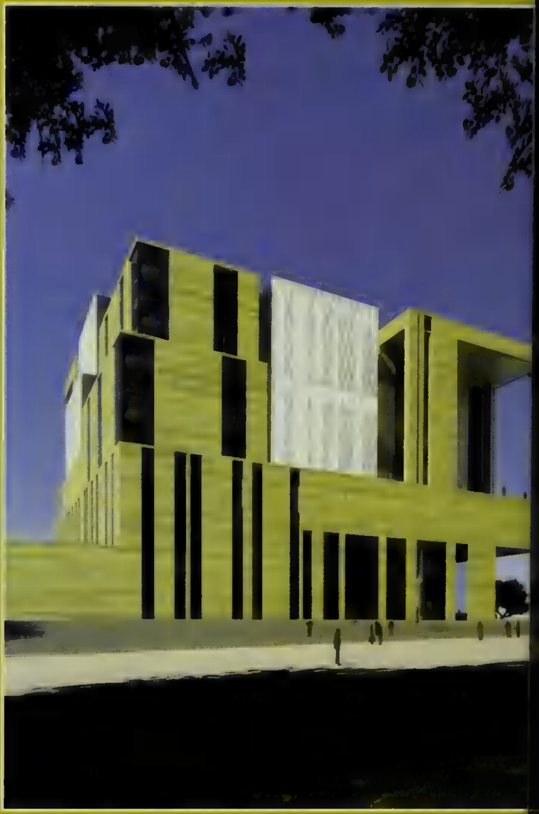
Yet the most surprising thing about Victory Park is not its price tag or its roster of celebrity designers, but its density. Instead of scattering individual buildings across the landscape like confetti, in the Dallas way, the developers have clustered them to create parks, plazas, and other public spaces—classic urbanism transported to the frontier.

Block 21 in Austin (by Andersson Wise Architects with BOKA Powell of Dallas) also contains a W Hotel, with shops and restaurants on the ground floor, condos above, and new homes for Austin City Limits and the Austin Children's Museum. It will sit across the street from Antoine Predock's City Hall, and two blocks from the future federal courthouse by Mack Scogin Merrill Elam Architects—both evidence of Austin's growing architectural sophistication after decades as a dumping ground for second-rate civic and commercial buildings.

Block 21 also adjoins the emerging Second Street retail

Contributing editor David Dillon writes about architecture and urban planning from Dallas and Amherst, Massachusetts.





Block 21 (left) in Austin, designed by Andersson Wise Architects and BOKA Powell, will combine shops, condos, and a W Hotel with new venues for the Austin City Limits theater group and the Austin Children's Museum. Just two blocks away there will be a new federal courthouse by Mack Scogin Merrill Elam Architects (right).

district, a pedestrian enclave of shops, restaurants, and housing that brings a touch of kick to Austin's downtown. The State Capitol may still be the city's symbolic center, but this neighborhood will likely become its civic and entertainment heart.

Trinity River View, in some ways Fort Worth's answer to Victory, is a proposed 800-acre, $450 million addition to downtown, complete with schools, shops, parks, and housing for up to 25,000 people. Planned by Vancouver architect Bing Thom, it will connect to the existing core via three fluid, curvilinear bridges that might have been sculpted from the Trinity floodplain.

These bridges are less tectonically expressive than the trio proposed by Santiago Calatrava for Dallas's monumental Trinity River project. The first, with a tall central arch recalling Eero Saarinen's Gateway Arch, will probably go ahead, even though the initial bids were 100 percent over budget. But the other two could be in trouble because of growing public skepticism about the rest of the project.

The original Trinity plan, estimated at $1.75 billion, called for a chain of artificial lakes in the middle of the Trinity floodplain, with intense residential and commercial development on the downtown side and a tollway tucked into one levee. The tollway has always been controversial, and now that the Army Corp of Engineers, in a reflexive post-Katrina move, intends to push it farther out into the floodplain, environmentalists are saying the Trinity project is really just a road project in disguise.

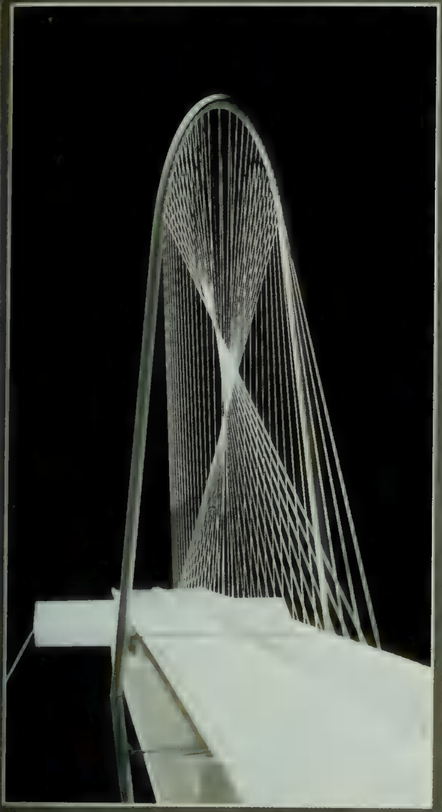
At the same time, it is becoming clear even in Texas that cities that don't conserve their green infrastructure today will lose it tomorrow. The clock is ticking on global warming, with several new studies predicting a prolonged drought for Texas that could turn Austin into Arizona.

Green architecture is still a novelty in this part of the world, but new parks and greenways are flourishing. Houston is pouring $115 million (private and public) into Discovery Green (the name was chosen in a contest!), a 12-acre park adjacent to the George R. Brown Convention Center in downtown. Designed by Hargreaves Associates and PageSoutherlandPage, it offers a range of formal and informal spaces at different scales, from undulating greens and concert lawns to playgrounds and bark parks.

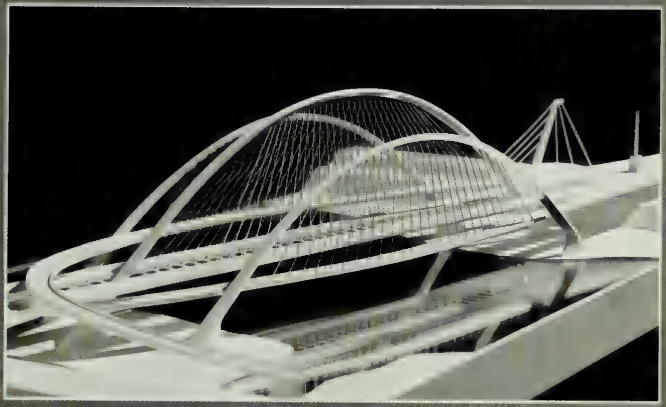
"People do get out of their cars in Houston, but the experience is usually not very pleasant," says park director Guy Hagstette. "We want this to be a place where Houstonians can enjoy being a citizen of the city."

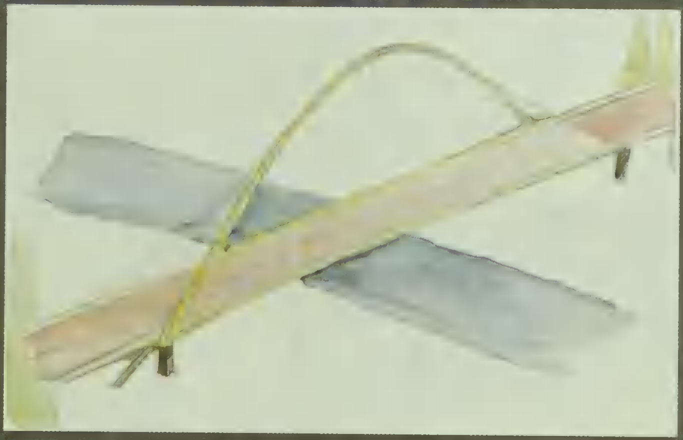
A complementary initiative is the ongoing reclamation and restoration of Buffalo Bayou, an ecologically rich but chemically challenged stream that snakes through the heart of Houston. A master plan by the Thompson Design Group envisions a network of parks, trails, and "bayou friendly" activities that will help tie this sprawling, fragmented city together. The recently completed Sabine-to-Bagby Promenade has been a big hit, as has the astronomically tuned bridge and walkway lighting by Michael Korn and L'Observatoire International (see page 285).

These parks and greenways are becoming magnets for

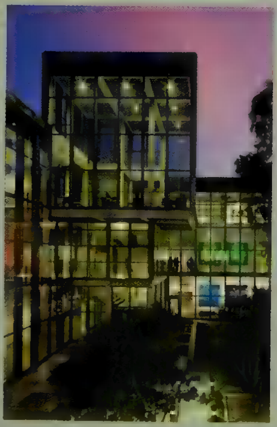


Santiago Calatrava has designed a series of five bridges for the Trinity River (and future lakes) in Dallas, hoping to turn the neglected waterway into a green parkway. The ambitious project tries to weave together neighborhoods on either side of the river while creating a new linear park.

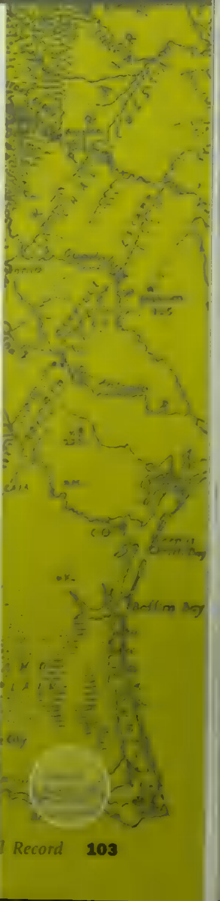


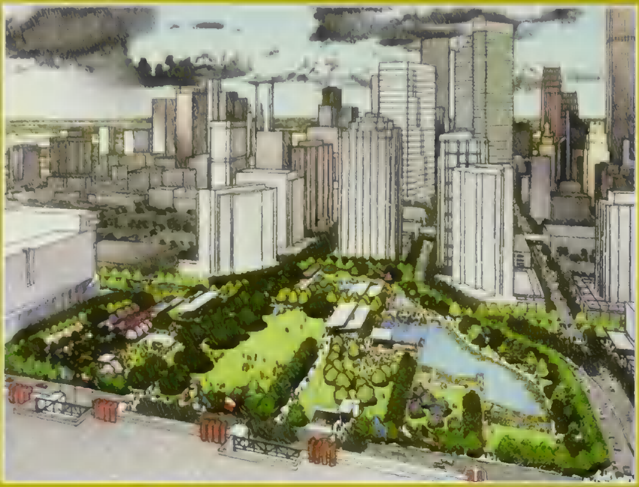


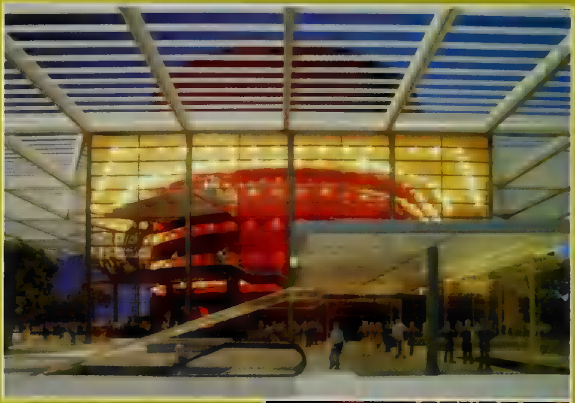
University building etches language into the minds of future educators

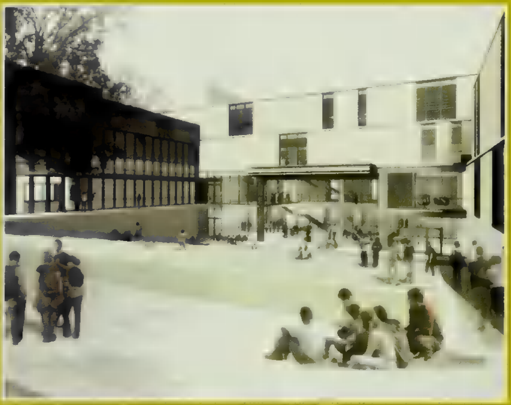


Located in Edinburg, Texas, in the Rio Grande Valley, some 20 minutes from the U.S.-Mexico border, the University of Texas-Pan American School of Education trains more bilingual teachers than any other program in the country. This posed both a challenge and an opportunity for Henry Muñoz, C.E.O. of San Antonio–based Kell Muñoz Architects, which designed for the school a new, 80,000-square-foot building containing classrooms, labs, lecture halls, office space, and research areas. It also renovated two existing buildings, adding offices and classrooms. "We had to ask ourselves, 'What is the cultural rationale for this building's existence?' " he says. "Nearly everyone in this region is bilingual, so we found language to be the point of departure for the design—language as the ultimate border, and as a point of unity." Setting out to create a design that was all about culture and language and could fulfill the program of an educational building, Muñoz created a three-story brick-clad building that would, on the outside, be congruent with the other, older buildings on the campus. Inside, however, the building's unique personality is revealed. Glass walls surround a large open courtyard, and a transparent glass elevator takes students and faculty up the three floors, on what Muñoz calls "a journey through language." Colors—primary for the first floor, more complex secondary ones for the second floor, and tertiary for the third—serve as signposts along the journey, as do sayings (or *dichos*) that Mexican grandmothers hand down to their families. The *dichos* are etched into the glass in both English and Spanish, while words and phrases are embedded in metal railings. "All of it is meant to symbolize 'code switching,' " says Muñoz, "or identity markers—those interactions between English and Spanish—that are part of the culture of this region." Light, too, is important to the project, with bright, South Texas sunshine playing on the railings and etchings, leaving shadows on the concrete walls and floors. In addition, a light chimney above the elevator brings daylight into the core of the building. "It's a practical building," says Muñoz. "But we were able to address architecturally some of the controversies surrounding the country's shifting demographics in a way that is appropriate to the kind of education that occurs here." *Ingrid Spencer*

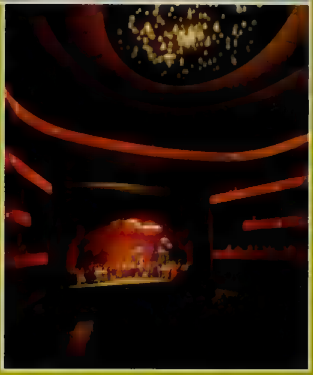


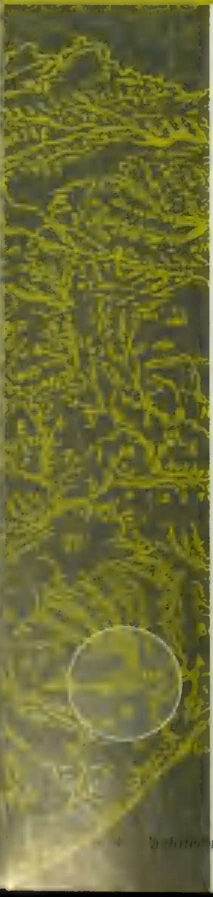




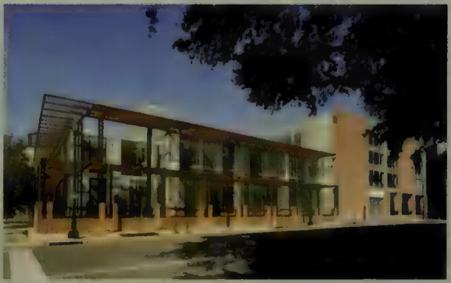


Hargreaves Associates and PageSoutherlandPage designed Discovery Green (above left), which will be a 12-acre park in Houston. The Dallas Center for the Performing Arts will feature an opera house by Foster + Partners (right and above right), as well as the Booker T. Washington School for the Performing and Visual Arts (left) by Allied Works Architecture, a theater by Rem Koolhaas, another theater by SOM, and a park by Michel Desvigne.





Bishop and homeless share a mixed-use center in downtown Houston



Occupying a full city bock, the renovation and expansion of the Diocesan Center of the Episcopal Diocese of Texas and Christ Church Cathedral—Houston's first religious congregation, founded in 1839—brings a radical, mixed-use project to a vibrant and diverse quadrant of downtown. Designed by Lawrence W. Speck, FAIA, for Leo A Daly/LAN + PageSoutherlandPage, a joint venture, the 99,700-square-foot group of buildings relocates the central offices for the Bishop of Texas and Diocesan Center to downtown Houston; establishes a center for the homeless; provides a four-story parking facility for the area, and creates a significant open public space for the neighborhood. "There are high-end hotels and even a jail across the street from the project," says Speck. "I love that aspect of downtown Houston. We hoped to put all the elements of this project together in such a way that there weren't conflicts. Homeless people have to do a lot of waiting, and we wanted to give them a shady place to gather where they wouldn't feel uncomfortable, while at the same time maintain the ceremonial quality of Texas Avenue," a prominent thoroughfare. Speck's design for the complex places the Diocesan Center and a public park—a setting for weddings and other events—on Texas Avenue, with the bishop's offices in a subtle, two-story box with four different kinds of glass set behind ipé wood trellises. The 22,000-square-foot John S. Dunn Outreach Center and the Beacon, the cathedral's ministry to the homeless, faces an existing row of trees on the northern half of the complex, with a deep arcade buffered from the sidewalk by a long, narrow garden. The center offers facilities for the homeless, such as a soup kitchen, hygiene center, mental health clinic, and job and training center. As a backdrop to the complex, a 350-car parking garage completes the block. The garage's south wall is clad in a native Gulf Coast brick that evokes the brick of the original cathedral, as well as glass and a wood screen. Used by church visitors when events and services occur, the garage also provides paid parking for neighboring facilities such as courthouses and Minute Maid Ballpark. While the cathedral always had a historic presence in the neighborhood, says Speck, "It's now become a real landmark." *I.S.*

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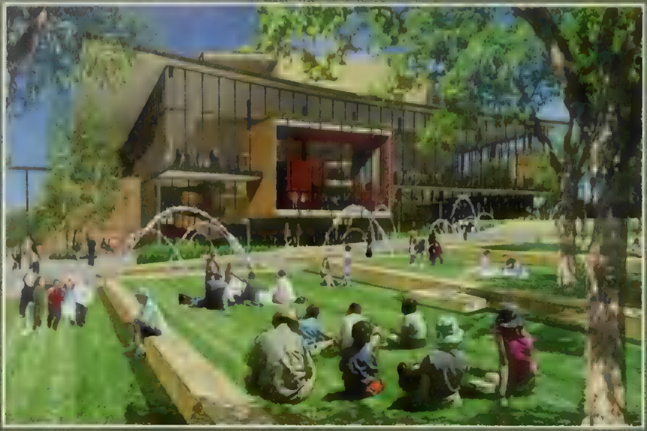

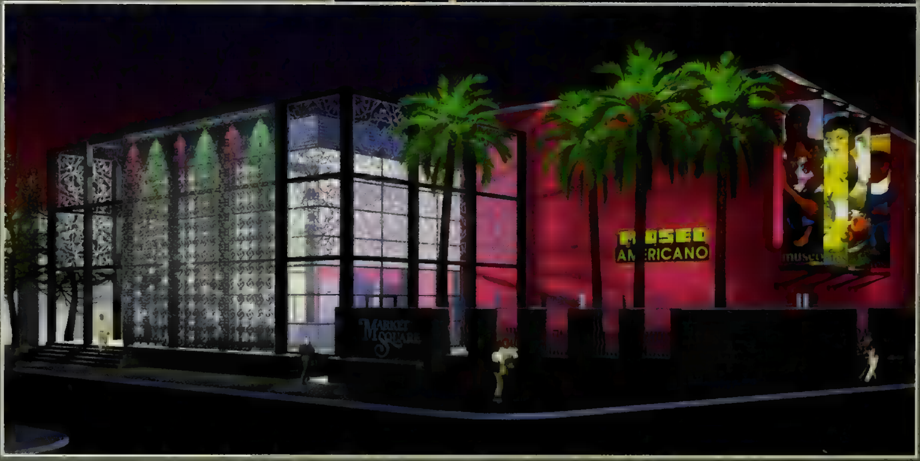

Even secondary cities such as Plano are hoping to attract attention with cultural projects, such as the Collins County Performing Arts center (above) by BOORA. In San Antonio, Jackson and Ryan Architects converted an old movie theater near the Mercado into the Museo Americano (right and top right).

downtown development, particularly housing, which is sprouting like mushrooms after a spring rain. Discovery Gardens won't open for another year, yet already a 37-story condo tower is going up beside it. Austin's historic Republic Square will be the front lawn not only for the new federal courthouse but for at least three neighboring office/condo towers. And San Antonio is extending its famous River Walk another mile and a half to create a cultural corridor linking its major museums (San Antonio Museum of Art, Witte Museum) with an anticipated burst of new housing.

This boom marks a major turnaround for Texas downtowns where, except perhaps in San Antonio, people practically had to be bribed to move. In the early 1990s, downtown Dallas had 250 residents, most living in one building; today there are approximately 3,500, with another 7,500 within a mile radius of Main Street. Houston's numbers are comparable. Much of this new housing is in recycled warehouses and factories (Houston's Allen's Landing and Austin's Second Street District) or in luxury high-rises, as in Dallas's exploding Uptown neighborhood. The architecture is mostly generic and instantly forgettable, although here and there a project rises above dull normal. That's the case with both the W Hotel and Residences and the new KPF tower at Victory, as well as James Cheng's slick Azure in nearby Oak Lawn, and Austin City Lofts by Larry Speck of PageSoutherlandPage. At a different scale, Val Glitsch's Canal Street Apartments in Houston's Second Ward is a smart, contemporary SRO serving a population that has been totally ignored in the current boom.

New housing and new cultural facilities usually go together, and Texas is experiencing a boom on this front as well. Topping the list is the $300 million Dallas Center for the Performing Arts, scheduled to open in 2009, which features an opera house by Foster + Partners, a theater by OMA, and a smaller City Performance Hall by SOM/Chicago. They all frame a large public plaza by Parisian landscape architect Michel Desvigne, with a civic exclamation point in the form of a new Arts Magnet High School by Brad Cloepfil of Portland's Allied Works Architecture. It is a thoroughly modern enclave, formally restrained but with Foster and Koolhaas pushing the technological envelope. While this may seem odd in a city overrun with big-hair houses of a neo-Georgian persuasion, it fits Dallas's image of itself as a with-it place.

Predictably, the presence of so much imported talent hasn't sat well with Dallas architects who claim, justifiably, that a few of these prestigious civic commissions should have gone to them. A thriving local architectural culture, the argument goes, is like a thriving local economy. You can't import everything; sooner or later you have to grow your own. But Dallas has always used celebrity to create cachet. Its Arts District boasts four Pritzker Prize winners—Foster, I.M. Pei, Koolhaas, and Renzo Piano—so this is nothing new.

And other Texas cities are playing the same game. The Dallas suburb of Richardson hired the local office of RTKL to design its strikingly contemporary Eisemann Center, but neigh-

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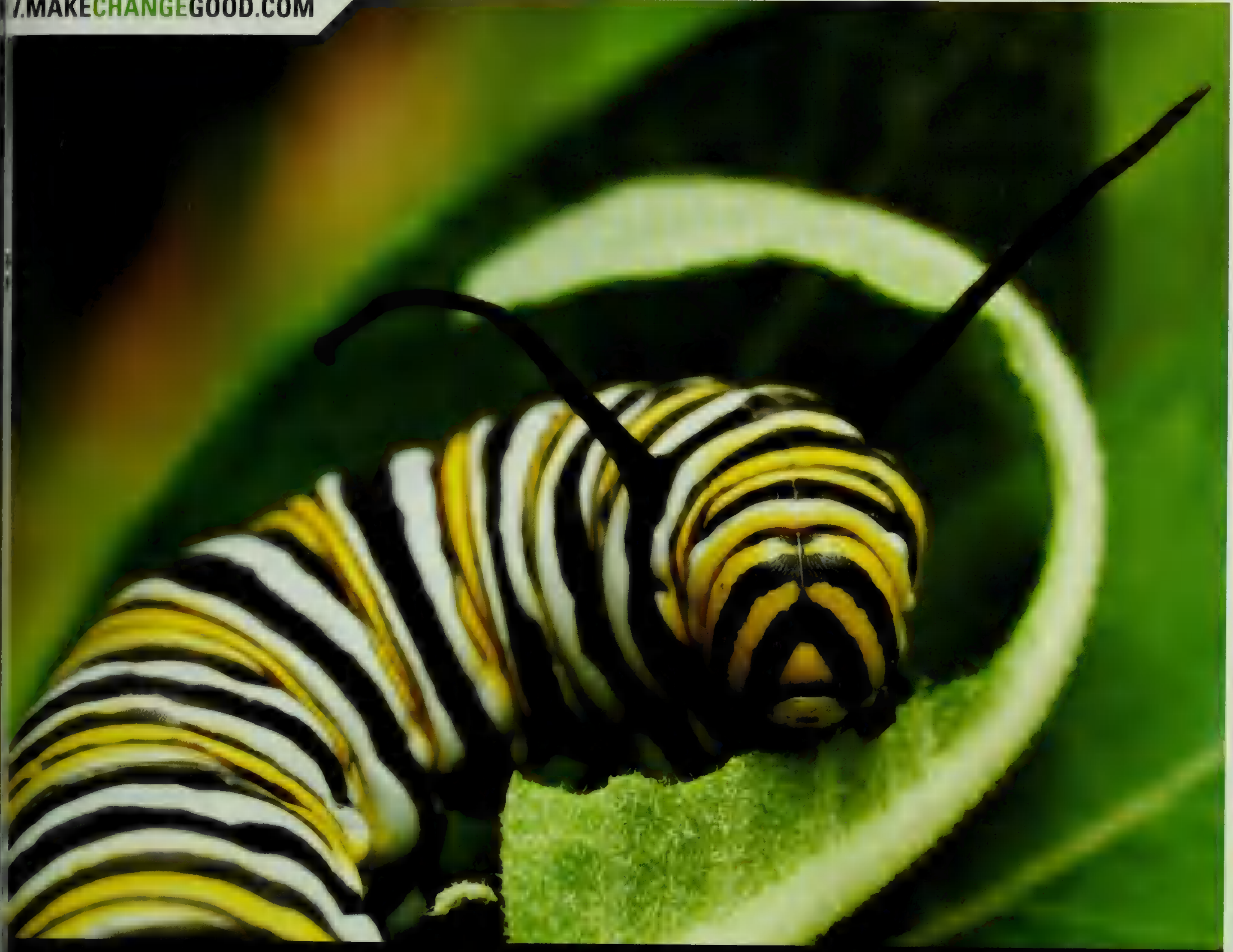

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boring Plano brought in BOORA for the new Collin County Performing Arts Center. The design is appropriately suburban—more like Tanglewood or Wolftrap in their rural settings than anything in Dallas—with abundant wood and stone and a clear sensitivity to its surroundings and its SUV constituency.

After running off Herzog & de Meuron in 2002, the University of Texas in Austin hired Kallmann McKinnell & Wood to design its Blanton Museum of Art, a valuable addition to a museum-poor city but an overscaled and ponderous building nonetheless. Down the road in San Antonio, Jean Paul Viguier and Ford Powell & Carson are collaborating on a major addition to the McNay Art Museum, a romantic Moorish-Spanish Colonial concoction for which O'Neil Ford's office designed a handsome Modern wing in the 1970s.

Among Texas cities, San Antonio has always been the most comfortable with its architectural heritage, a low-key Spanish-Mission, Texas-Hill-Country blend to which Ford gave an understated Modern twist, and that newer offices—such as Lake/Flato, Kell Muñoz, and Overland Partners—continue to mine effectively. It has more grain and character and less pretense than its competitors. Even outsiders pick up on it. One of the most intriguing additions to the city's cultural life could be the Museo Americano, a restored atmospheric movie house near the Mercado that has been converted into a lively and colorful arts center by Jackson and Ryan Architects of Houston.

Texans are never going to abandon their cars. Deep down they believe that legs are purely decorative and the world looks best at 60 mph with the top down. That said, light rail is coming fast. Dallas's system, DART, is expanding to the northern suburbs that initially spurned it, with weekday ridership approaching 65,000. Several other lines are under construction to the minority southern half of the city, including one to the new Dallas campus for the University of North Texas. Houston's new light-rail system is more skeletal, running from downtown to the Astrodome, with a second line being planned. Austin's starter line, scheduled to open in 2008, will cover 32 miles from the downtown convention center to the northwestern suburb of Leander.

Embryonic though they are, these rail projects point unmistakably to a different, denser future for Texas, with fewer single-family subdivisions and solitary office parks and more housing and mixed-use development along transit corridors. These corridors will gradually supplant freeways as public officials recognize they can never pour enough concrete to eliminate congestion.

Dallas and Fort Worth are already a single region economically and ecologically, as are Austin and San Antonio. Together with Houston, they form what's called the Texas Triangle, which accounts for two-thirds of the state's population and three-quarters of its economy. Like New York and New Jersey, Baltimore and Washington, and San Diego and Los Angeles, they are among the mega regions that planner Robert Yaro calls the "basic competitive units of the new global economy."

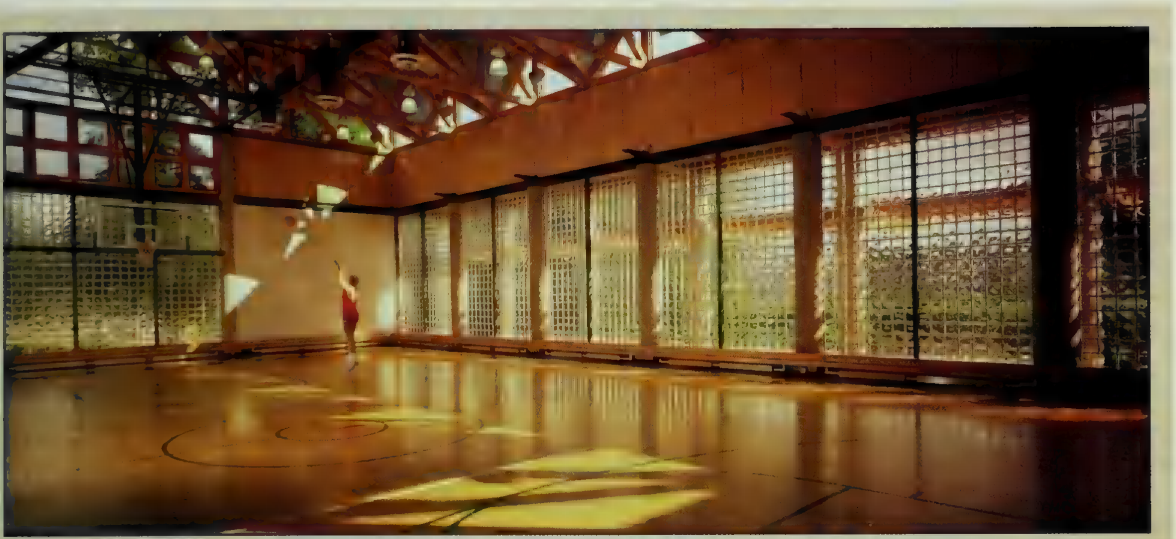
Over time, the Texas Triangle will function as a single economy, with jurisdiction over air, water, and transportation. The big issues won't be whether a city has a splashy new convention center or pro sports franchise, but how often the bullet train runs and how healthy the regional watershed is. ■

Energy-efficient design is for the birds (and the people who watch them)

Drawing inspiration from the low-tech, utilitarian ethos of the South Texas farm economy, Lake/Flato Architects designed a complex of long and narrow structures for the World Birding Center that sits lightly on a 60-acre site just outside the town of Mission. Three buildings, oriented in an east–west direction, contain administrative offices and a visitors center that serves bird-watchers who travel to this remote destination along North America's major migratory flyway.

Roofed with Quonset-style corrugated metal arches that allow 32-foot clear spans, the buildings are models of energy efficiency and sustainable design. By using exterior circulation and creating flexible interior spaces, the architects were able to reduce the footprint from 20,000 to 13,000 square feet and save 35 percent in materials, energy, and maintenance costs. In addition, arch panels act as a combined structural and roofing system that uses 48 percent less steel by weight than traditional framing. Roofs feed rainwater to corner cisterns to harvest 47,000 gallons annually for irrigating gardens, while arches project out to create deep porches at the ends of the buildings and shaded hallways along their south sides. Walkways connecting the buildings are paved in local brick and shaded from the relentless semitropical sun by flowering vines trained up galvanized metal arbors.

Lake/Flato integrated the buildings with surrounding gardens designed by Kingscreek Landscaping. The site is a former onion farm that has been replanted with native vegetation and enhanced with ponds that attract birds journeying north in summer and south in winter. Located in a state park, the complex is one of nine World Birding Center facilities in the Lower Rio Grande Valley, a migratory pinch point that funnels more than 500 species through the region. Physically immersing visitors in nature was key to Lake/Flato's design, says project architect Robert Harris, AIA. "We want our building to fit into that experience in an elegant way," he says. "The building in essence disappears. I couldn't be happier if, as you approach this place, you see just a silver sliver of roof, and nothing but green." ***Stephen Sharpe***



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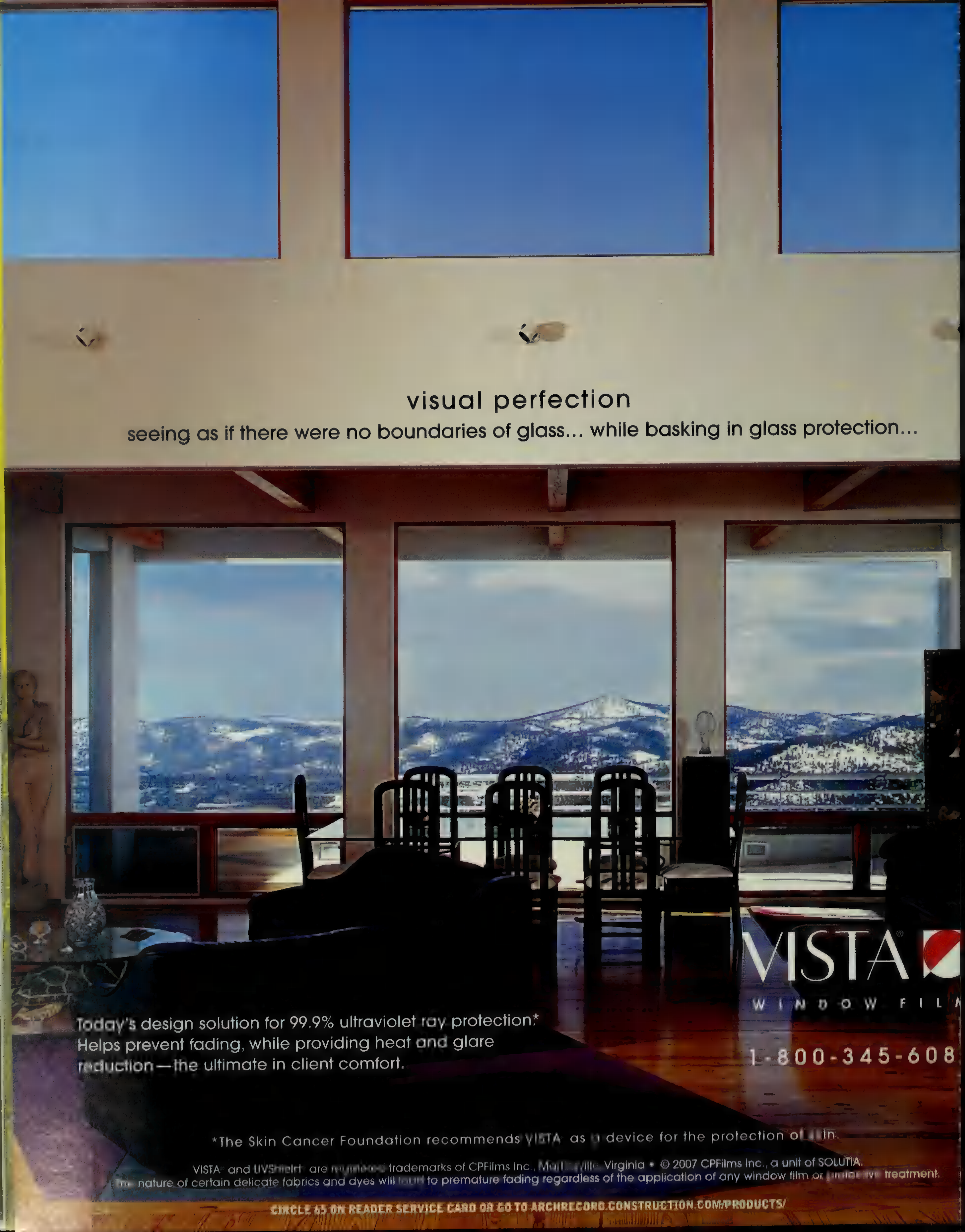visual perfection

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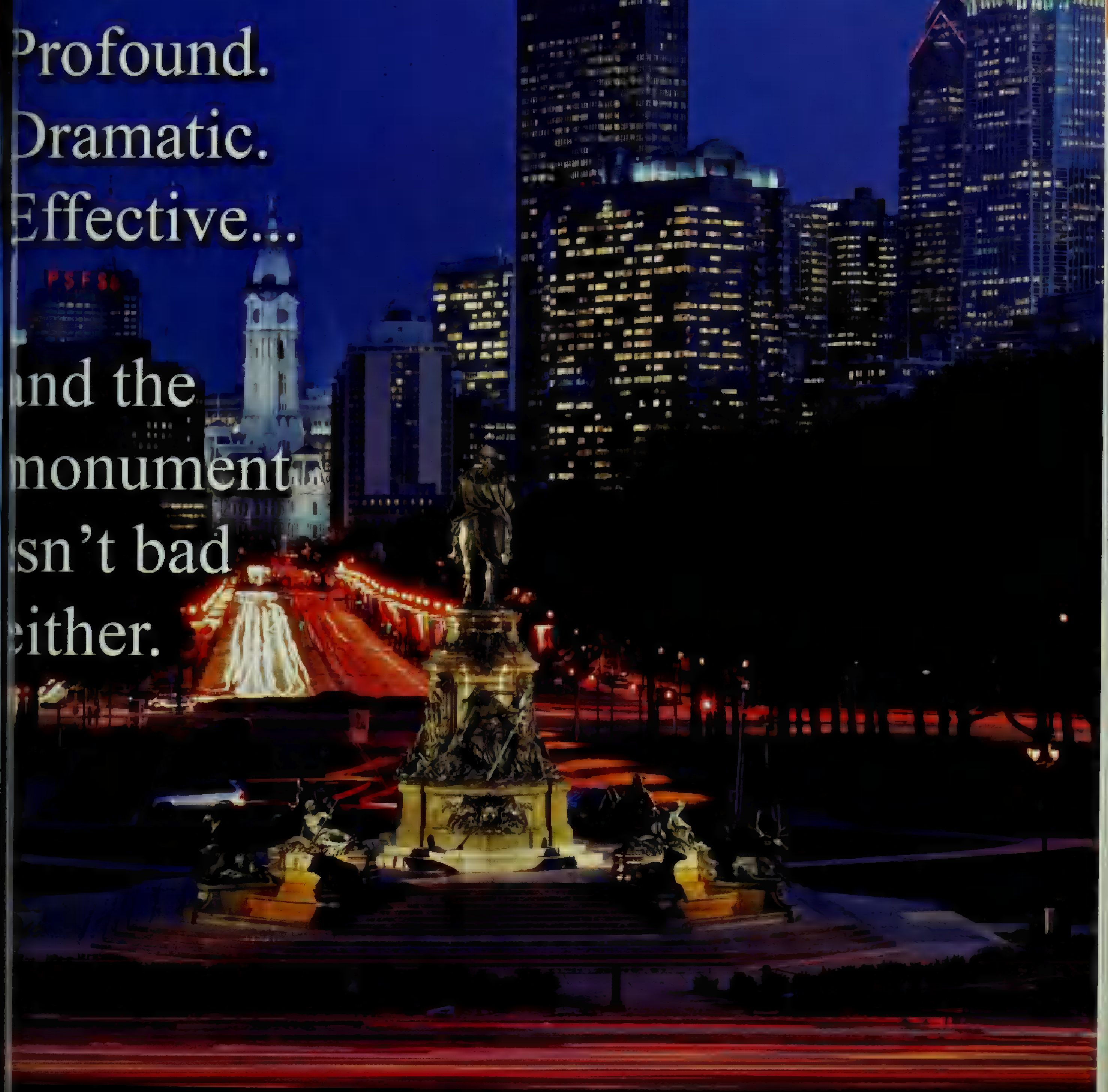

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Integrated practice in perspective: A new model for the architectural profession

The inefficiencies inherent in the process of design and construction are necessitating a shift to greater multidisciplinary collaboration and information sharing among project team members

By Andrew Pressman, FAIA

This is an exciting time to practice architecture. Architects and engineers seem to be able to design and construct almost anything they can imagine, and the data they use enables these buildings to be well managed by their owners. Architects, consultants, and owners are also working together more closely than ever.

Integrated practice (IP) is the term that is being assigned to this collaborative process. IP is a meaningful response to the ongoing marketplace mandate for buildings that are faster to design and construct, at lower cost, as well as more sustainable and of higher quality than those built in the past. Building information modeling (BIM) is enabling—some say forcing—this information-sharing, integrated-practice culture to emerge.

BIM, of course, is the parametric object-based software that is used to create not only a three-dimensional model of a virtual building, but also drawings and rich databases of information that can include such things as budget estimates, construction schedules, quantities takeoffs, and fabrication details. Parametric modeling allows for substantial changes to be made quickly and for easy interference-checking to occur. These and other features are discussed in RECORD's April architectural technology article, "Transformative Tools Start to Take Hold."

There is nothing new about architects, clients, and consultants collaborating. William Caudill, FAIA, of the firm Caudill Rowlett Scott, coined the term *squatters* in the 1950s to describe meetings between the architect, engineering consultants, owner, and users—on the owner's home turf before design began—to program, clarify values, and brainstorm design ideas. William Lam, the renowned lighting designer, who often worked with Caudill, says, "Rapport and sensitivity among individuals is essential so that meaningful dialogue can continue. An individual has to care more about results than his or her ego."

Lam could just as well have been describing how firms today should approach integrated practice. Although consultants often met during squatters and then went their separate ways, BIM demands that project teams meet and exchange information frequently. The shakeout of what the building information model and its supporting technology means for teams engaging in integrated practice has begun and continues at a rapid pace. And there are a number of significant consequences that affect firm culture, standard contracts, liability insurance and risk management, compensation, and professional education. Those who think critically and innovatively about these new business practices will lead the way and prosper.

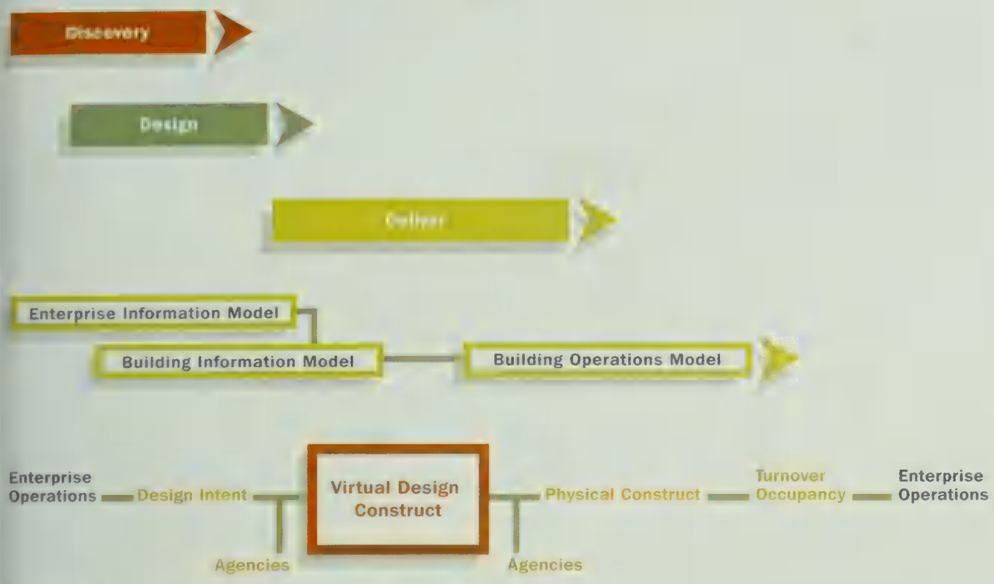
Firm culture

Perhaps the biggest cultural change is not learning how to use new tools and technology, but rather the attitude adjustment required to collaborate effectively with the entire team from the start. According to Volker Mueller, Assoc. AIA, design technology manager of NBBJ, this calls for "the alignment of project goals across the entire project team and a fundamental understanding that the project has to start coming together at kickoff rather than after procurement. Today's increasingly complex projects require the input of a broad-based team."

"Architects should concentrate on leadership rather than ownership; on design rather than avoiding risk," says Scott Simpson, FAIA, senior principal, KlingStubbins. "The efforts of dozens of consultants need to be managed and coordinated, placing a premium on architects' leadership skills." With the right people on the team, the right tools, and a smart process, effective leadership will orchestrate the creation of great architecture. That point is succinctly underscored by Andy Anway of the Boston exhibition design firm Amaze Design. "The senior-level people must be committed to achieving a common outcome, with financial or other incentives to keep that singular mind-set in place. The success of a team-based process is a function of mutual cooperation and mutual benefit," he says. Anway feels that, in this model, many architects will have to overcome a certain sense of loss about having total control over design.

It seems intuitive that not only will emerging architects have great design opportunities working in an IP model, but that they will have the opportunity to learn leadership skills. Diane J. Hoskins, AIA, the executive director of Gensler—where everyone in the 1,700-person firm is either involved in a project using BIM or learning how to use the technology—says, "With BIM, we no longer have an assembly-line process; this means our young staff need to understand the whole project so they can work effectively across plan, section, detail, and elevation. It is a steep learning curve in the first several years of one's architectural maturation."

Andrew Pressman, FAIA, is a practicing architect who resides in Washington, D.C. He is editor in chief of the 11th edition of Architectural Graphic Standards *(2007).*



This chart, authored by Volker Mueller, Assoc. AIA, of NBBJ, illustrates the way project phasing changes when BIM is used as the technology for an integrated practice project. The client's enterprise-operations model yields [illegible] idea for a facility that guides the development of a design-intent model. In turn, this design-intent model yields a virtual design and construct phase, in which manufacturers and builders construct the design-intent model digitally. This simulation includes construction scheduling required for a smooth execution of the project. With all constructability questions resolved, the team can move forward with the physical construction of the building. The virtual construction model develops into an as-built model that can serve the client as a building model for the operation of the facility.

Contract documents

Integrated practice will drive changes to contracts in order to facilitate working in teams, sharing information, and fairly allocating liability risk, compensation, and responsibility. Changes will most likely occur incrementally with "the continued growth of design-build, tweaked conventional contracts, and increased experimentation with transformational methods like 'project alliancing,' " according to Cambridge, Massachusetts, attorney Chris Noble, of Noble & Wickersham. In this transition period, Noble believes that "there will be increased use of project conditions that will be attached to various multiple contracts to create a projectwide legal system to regulate intellectual property rights, resolve intra-project disputes, establish communication protocols, and allocate rewards commensurate with risks."

According to Suzanne Harness, AIA, managing director and counsel for contract documents at the American Institute of Architects, the AIA Documents Committee is in a "research stage" regarding IP and is evaluating the risk-sharing and risk-allocation provisions in alliancing contracts, and a few domestic private contracts, as well. "We are looking at the design process as a continuum from no integration at one end to full integration at the other, and trying to identify the contracting needs at intervals along the way," she says. She emphasizes that while there is an understandable outcry for the AIA to issue integrated practice documents immediately, it takes time to "get it right, and to act in concert with other stakeholders."

Of course, there is no legal expectation that construction documents will be perfect; there are invariably a few errors and omissions. In general, the "standard of care" suggests that an architect must exercise the degree of skill and care other architects in the community ordinarily exercise under similar circumstances. As BIM becomes the prevailing method for project execution, its ability to detect conflicts and mistakes in the 3D model will cause the standard of care to evolve. Adam T. Mow, AIA, attorney at Babcock Scott & Babcock, predicts, "Professional liability claims against architects are unlikely to decrease with BIM because clients will have higher expectations of the skill and care to be exercised."

Liability and risk management

"Choose your partner carefully!" underscores David W. Hinson, FAIA, program chair of the School of Architecture at Alabama's Auburn University, in describing a formula for success for design-build projects. This advice could not be more salient for IP, particularly if the architect remains the legal entity for delivering the project using BIM. Assuming the highest levels of expertise, trust, respect, and shared values among team members is still an essential component of managing risk in the context of full collaboration and blurring of responsibilities.

Echoing Bill Lam's comments about squatters, Joseph H. Jones, Jr., AIA, director of A/E/C risk management services at Victor O. Schinnerer & Company, says that IP team members will have to surrender their individual identities as the success or failure of the project will belong to the new entity. He says that since most claims originate from the client, getting team composition right—choosing the right clients and project—is a project-management strategy that will never go out of style.

Lorna Parsons, the managing director at Schinnerer, elaborates: "Working collaboratively and on the Internet can expose firms to Internet, technology, sometimes media liability claims, or even copyright or libel claims." But that at this stage she notes that her firm will not do much to dictate how IP teams work. "The insurance industry should not decide how to implement collaborative design because it is generally risk-adverse, and that inclination would be reflected in their decisions about how collaborative teams should practice."

It is interesting to speculate about whether a 3D model will one day be seen as a document of record, to which a "seal" will be affixed, and used for construction in lieu of drawings. But no matter what technology is used, making sure that the firm continually gives its clients frequent, careful, and sensitive attention will always be one of the best strategies to avoid claims. It is too early for IP and BIM to have had an influence on developing model legislation for states, says NCARB executive vice president Lenore M. Lucey, FAIA. NCARB has recently established the BIM Task Force, which is expected to issue a report to its board in the spring of 2008.

Compensation

Few firms are tipping their hands about whether they see IP changing the way they negotiate fees with their clients and consultants. But surely new fee arrangements will align the collaborative effort, inherent risk, and whether there is added value in leading this team-based design process. At the very least, all the front-end work associated with BIM suggests a reallocation of fee by phase—assuming traditional phases in this transition period.

James R. Brogan, AIA, senior associate principal at Kohn Pedersen Fox Associates and director of the firm's IT, claims that the clearly articulated lines between traditional phases of design will blur, and the way they are codified in standard AIA contracts will eventually be restructured. Business terms between owner, architect, and all stakeholders will reflect the new relationships and responsibilities among the design teams. It is even possible that the project-alliance system gaining acceptance in other parts of the world, in which bonuses or penalties are awarded or assessed based on overall team performance relative to specific outcomes, will gain acceptance here.

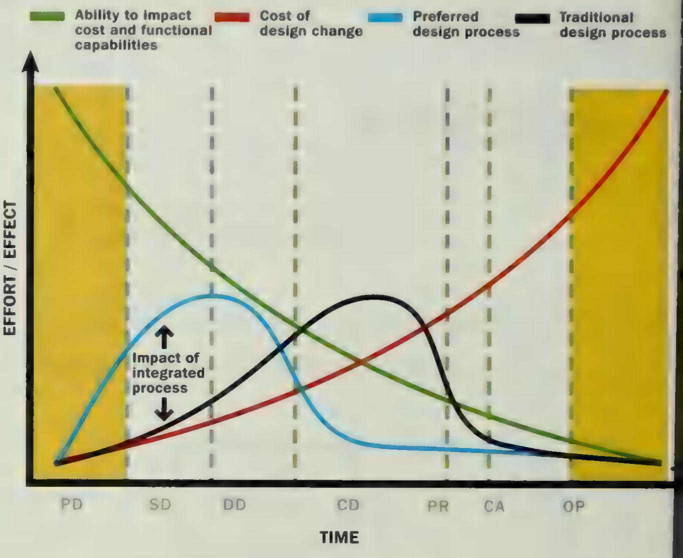
Notwithstanding competition and an awareness of what the market will bear, a fee for services based on value to the owner is perhaps a more salient method than ever with IP. Scott Simpson implores architects to be "more articulate about explaining their value propositions—what we do for clients that is worth real money." If that can be set forth, he says, "in ways that clients can relate to, the fees will take care of themselves." Certainly design efficiency and construction cost savings are factors that could contribute to value for the owner. Brogan agrees, noting, "The potential of fewer change orders and generally a smoother construction process would translate to better value." On the other hand, some people believe that it will be hard to convert this enhanced value for the owner into better fees in the long term: As more firms adopt an integrated-practice model, what has begun as an advantage for early adopters will simply become standard practice for the profession.

Implications for architectural education

Many academic programs still produce students who expect they will spend their careers working as heroic, solitary designers. But integrated practice is sure to stimulate a rethinking of that notion. Pedagogy must focus on teaching not only how to design and detail, but also how to engage with and lead others, and how to collaborate with the professionals they are likely to work with later. Renee Cheng, AIA, associate professor and head of the School of Architecture at the University of Minnesota, says, "While design remains central, critically important for studio and other courses are the ability to work successfully in interdisciplinary creative teams, write and speak effectively on professional topics, and be skilled in the arts of negotiation and facilitation." There are also questions of how to integrate BIM into curricula that are already packed. Cheng warns that "the careless introduction of BIM with all of its prerequisite skills could overwhelm the subtleties inherent in nurturing design thinking—displacing it from its central role in the architectural curriculum." How can virtual modeling software, then, be thoughtfully integrated into a curriculum without taking precious time away from learning basic design? Cheng describes a multivalent approach at her school, which incorporates BIM in a range of formats and levels, often complementing it with drafting and hand drawing.

The AIA's new Practice Academy initiative is intended to provide a framework for a rigorous internship by supporting innovative programs connecting academics and practitioners. The Boston Architectural College (BAC) is one of the first grant recipients; their Practice Academy is dedicated to understanding and teaching developments in IP and BIM in a unique connection with local cutting-edge firms. This pilot program could not be more timely since students will be engaged in BIM advancements in firms that are both leaders in the marketplace and initiating shifts within it.

Bruce E. Blackmer, FAIA, president-elect of the National Architectural Accrediting Board (NAAB), acknowledges that while there is no clarity at this time about the influence of IP on accreditation and education, "it is unlikely that skills in the use of particular technology tools will be expected, but those tools will be used by students to advance their demonstration of comprehensive, well-synthesized design solutions." And more emphasis will be placed on demonstration of integrative abilities such as "collaboration and shared or teamed leadership." In October 2008, NAAB will host its next Accreditation Review Conference; how IP should be integrated into education will be debated.



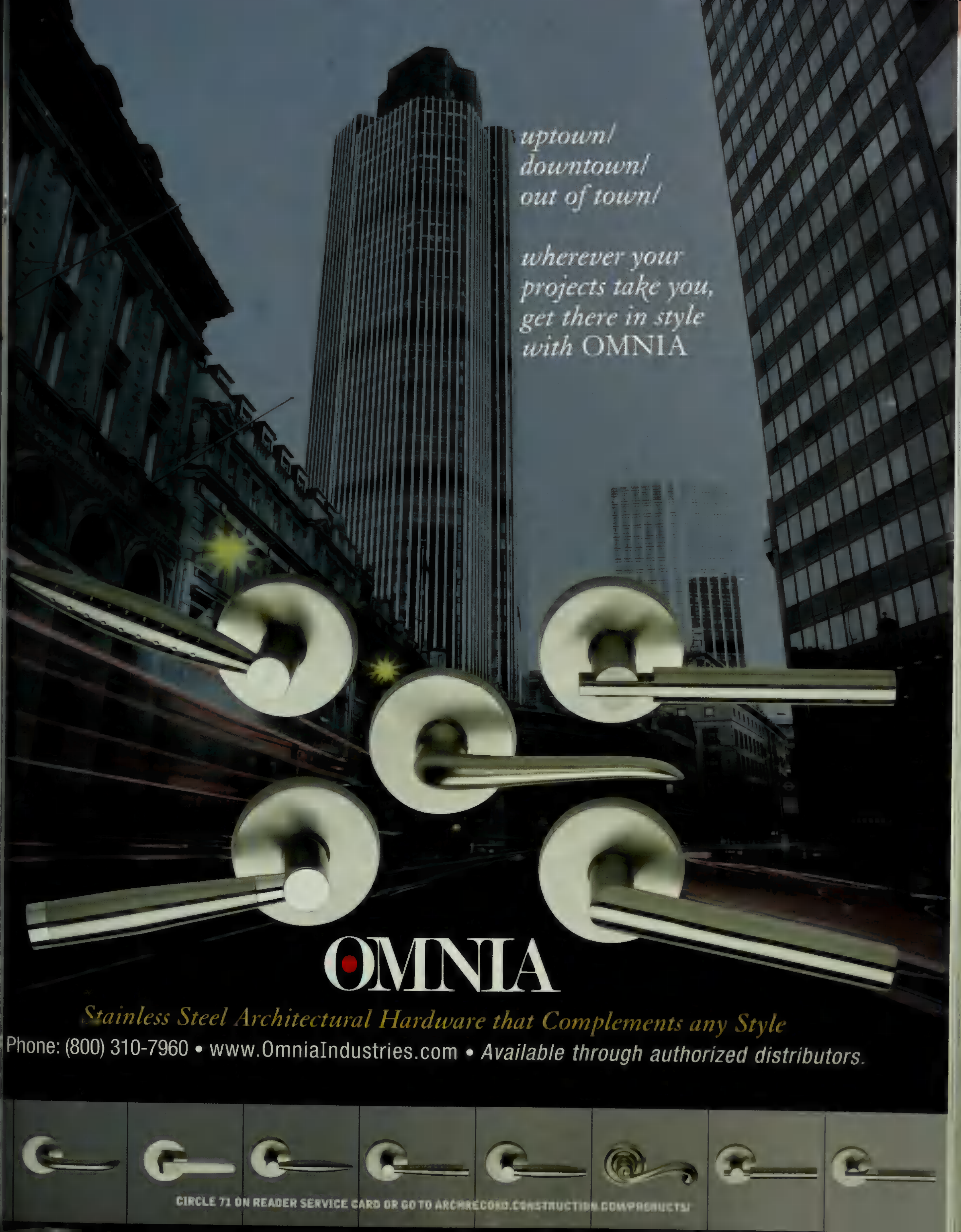
The promise of integrated practice is that design decisions can be made earlier, when they can have a high impact but their cost is relatively low.

And what about preliminary design?

In this big-picture perspective of IP, the discussion would not be complete without keeping in sharp focus our collective goal of creating magical, delightful, and wonderful places to live, work, and play. Developing those initial design concepts is sometimes very personal and idiosyncratic. Tools such as napkins and thick markers as well as the ability to deftly move in and out of different software—and between tools and media—will always have a place in the design process.

Geoffrey Adams, associate professor at the University of New Mexico, sheds light on this assertion by explaining that there is a fundamental difference between algorithmic computation and associative thinking, which lies at the heart of the human creative act and is the sou of design work. Adams argues, "Associative thinking, the ability to bring together disparate information from seemingly unrelated sources to create something new, is easily short-circuited when the mind is required to navigate numerous contingencies in advance of their useful deployment." The complete model approach of BIM software is very seductive, but it should be critically evaluated on each project for its exclusive use in the initial stages of the process.

No technology fully encompasses how a designer thinks. With all the significant innovations and possibilities envisioned with BIM, there are inherent biases with any modeling tool that make it less convenient to think in other ways. Earl Mark, associate professor at the University of Virginia's Department of Architecture, who was formerly a software engineer, explains that flexibility in describing geometry is slightly constrained because the template within the software uses fairly conventional language. However, there is capability to customize software to a specifi



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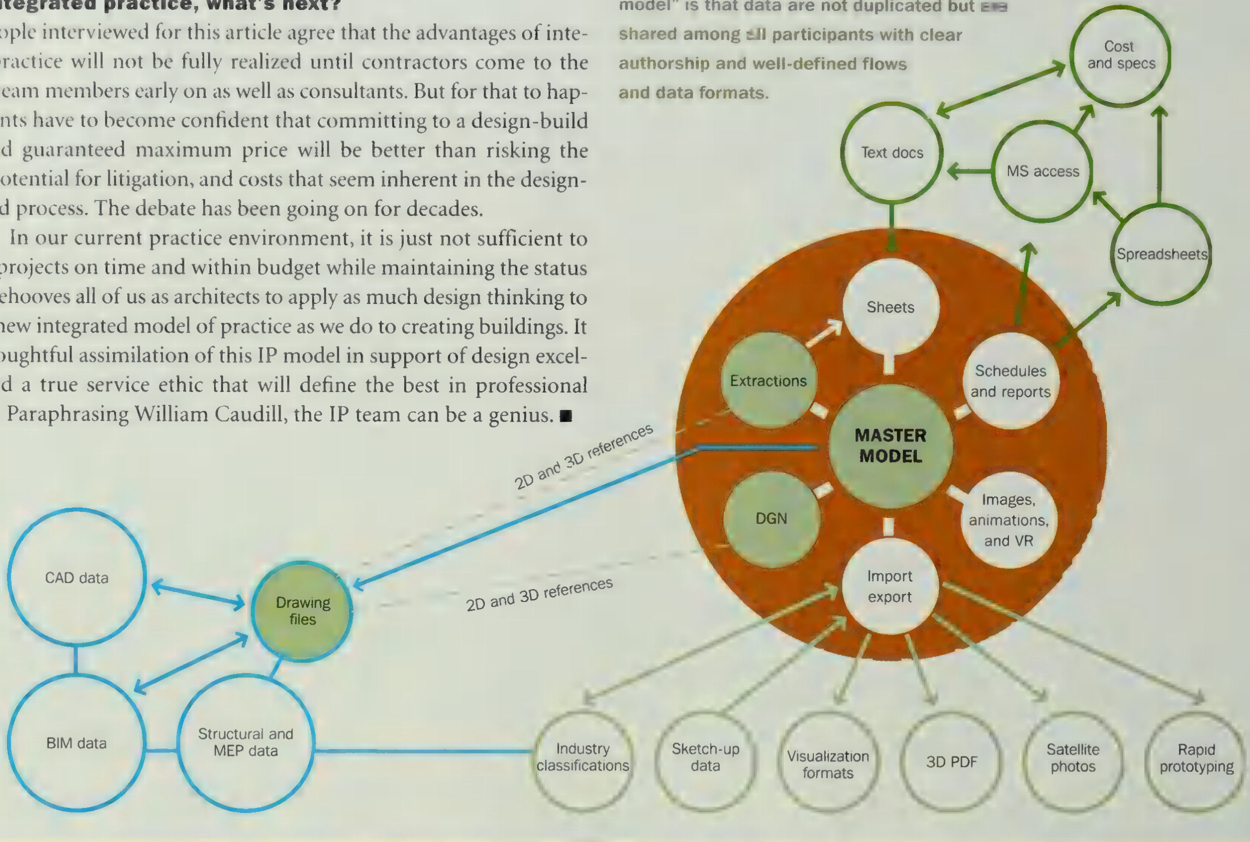
work process. Adams adds, "The more complicated and layered a software tool is, the more likely it is to privilege certain methods of working." Adams advises that one always be cognizant of both what the tool is doing to the design process as well as what it can do for it.

After integrated practice, what's next?

Most people interviewed for this article agree that the advantages of integrated practice will not be fully realized until contractors come to the table as team members early on as well as consultants. But for that to happen, clients have to become confident that committing to a design-build team and guaranteed maximum price will be better than risking the delays, potential for litigation, and costs that seem inherent in the design-bid-build process. The debate has been going on for decades.

In our current practice environment, it is just not sufficient to execute projects on time and within budget while maintaining the status quo. It behooves all of us as architects to apply as much design thinking to shape a new integrated model of practice as we do to creating buildings. It is the thoughtful assimilation of this IP model in support of design excellence and a true service ethic that will define the best in professional practice. Paraphrasing William Caudill, the IP team can be a genius. ■

This diagram, also authored by Volker Mueller, shows the relationship between partners using integrated practice (IP). The design and construction process generates data with various software platforms. For IP to be effective, data must be exchanged efficiently with the least amount of loss of information. Here, the idea of the "single-building model" is that data are not duplicated but are shared among all participants with clear authorship and well-defined flows and data formats.



Will using integrated practice challenge intellectual property norms?

One question on many minds is whether the advent of integrated practice, with building information modeling as a primary tool for facilitating it, will change customs regarding copyright of information and intellectual property. In other words, who owns the data? According to Volker Mueller, Assoc. AIA, design technology manager at NBBJ, "Authorship of BIM is analogous to authorship of other construction documents. Every discipline authors their scope of work." That seems simple enough. Consultants retain ownership of the data they plug into the model.

But some confusion exists because of persistent misunderstandings about what a BIM model really is. Davis Chauviere, principal and C.I.O. of HKS, says, "It is important to understand, in absolutely no software being used today is there a single model if the project is done by multiple firms using BIM. Consultants create their own models that are referenced into the architectural model just as they do with drawings. There is absolutely no problem keeping track of who authored what."

Tom Owens, principal and general counsel for NBBJ, adds, "To date, we have always had to extract traditional, two-dimensional prints from the model for someone on the project team or the jurisdictional authorities involved. When two-dimensional prints are extracted as the official 'contract documents' from the model, the model is no longer a 'contract document.' The difference lies with the new authors who might be involved in the model. If more folks contribute, including folks who don't have a contractual agreement regarding copyright, then the copyright ownership gets messy."

So, for now, the small proportion of firms who use BIM for contract documents adopt the same procedures that protect two-dimensional drawings. An architect registers design documents for copyright, including all the engineering work supporting them, and may protect them with a digital signature. Architects and lawyers say that engineers and other specialists provide data into a three-dimensional model as part of a general contract and don't try to own it. NBBJ may be slightly different in this respect. "We encourage consulting engineers to retain ownership, but to give us a license so that we may in turn license the work to the client."

And, undoubtedly, clients state in their RFPs that they expect to be provided with the rich data yielded by the BIM model and to be able to use it to run their facilities. This superior work product is, after all, a key reason firms are migrating to the software. But will owners repurpose or modify the copyrighted material? Chauviere says the same issues came up 20 years ago, when firms started to migrate to CAD. "The concerns are more about being indemnified from improper use of the data than the actual release or compensation. Not wanting to lose the job over something that is created as a natural artifact of our services, our firm will almost always release the data."

—Charles Linn, FAIA, with Alec Appelbaum, a New York City–based writer on architecture and planning.

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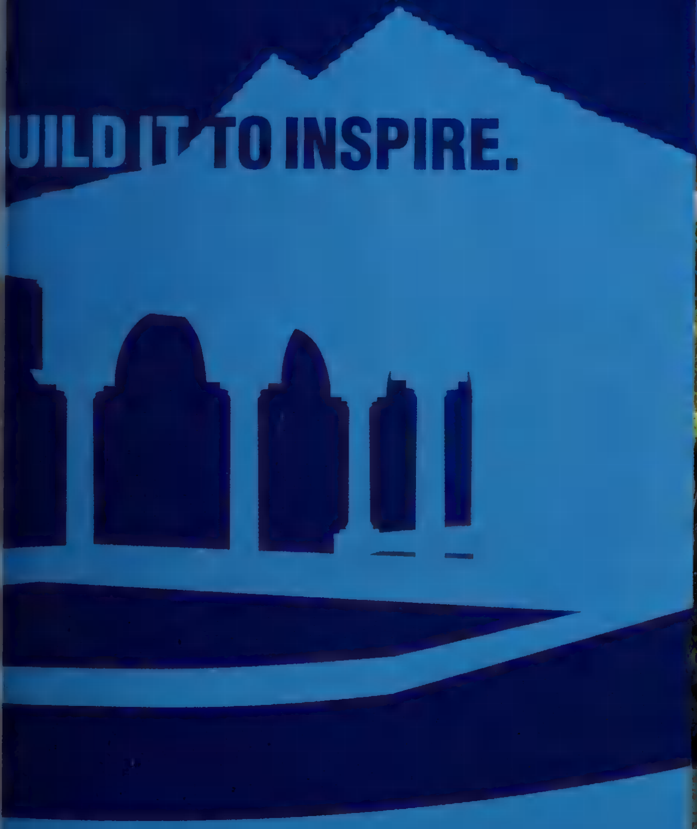
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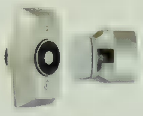

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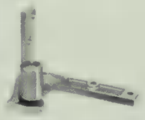

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American Institute of Architects

2007 Honor Awards

Architecture p. 130
Interiors p. 138
Urban Design p. 149
25 Year Award p. 158
Firm Award p. 160
Gold Medal p. 166

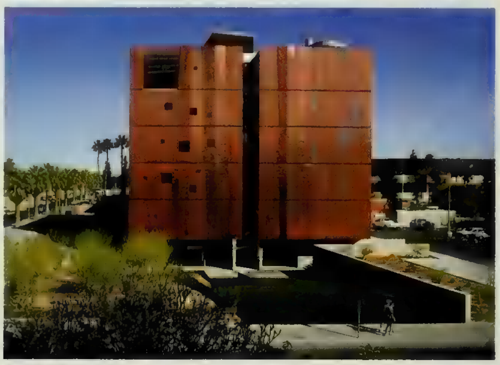
It's no surprise that the vast majority of this year's AIA award winners share an interest in preserving the quality of the natural environment—architecture's future is undoubtedly "green," and the firms featured here represent the profession's cutting edge. From Pugh + Scarpa's energy-neutral Solar Umbrella House to Lake/Flato's World Birding Center, which provides a conscientious gateway into the wild, to the seven regional and urban design winners, which consider sustainable ways to develop land—these projects exemplify how innovative design techniques can do more than just improve the aesthetics of a given site.

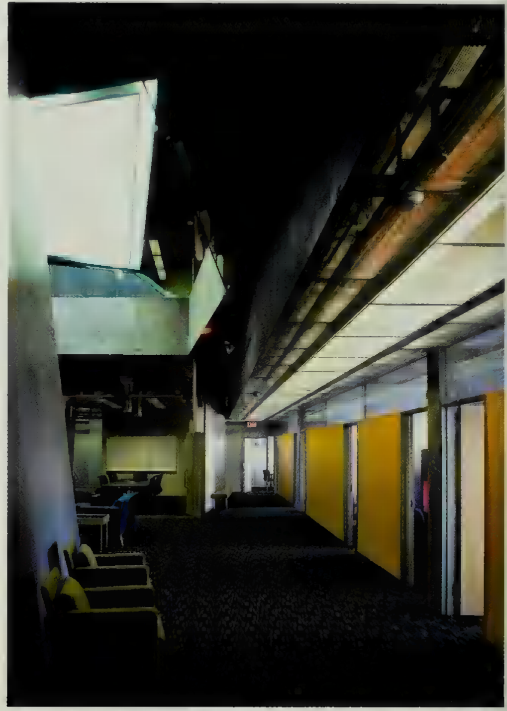
But while ecofriendly design is all the rage now, Maya Lin's Vietnam Veterans Memorial, the recipient of the 25 Year Award, has quietly demonstrated another approach to integrating architecture and nature, giving a different connotation to the word "sustainability." The elegance, solemnity, and democratic accessibility of the structure's black granite walls endow the memorial with a timelessness that makes this exemplar of bold form as relevant today as when it was erected in 1982.

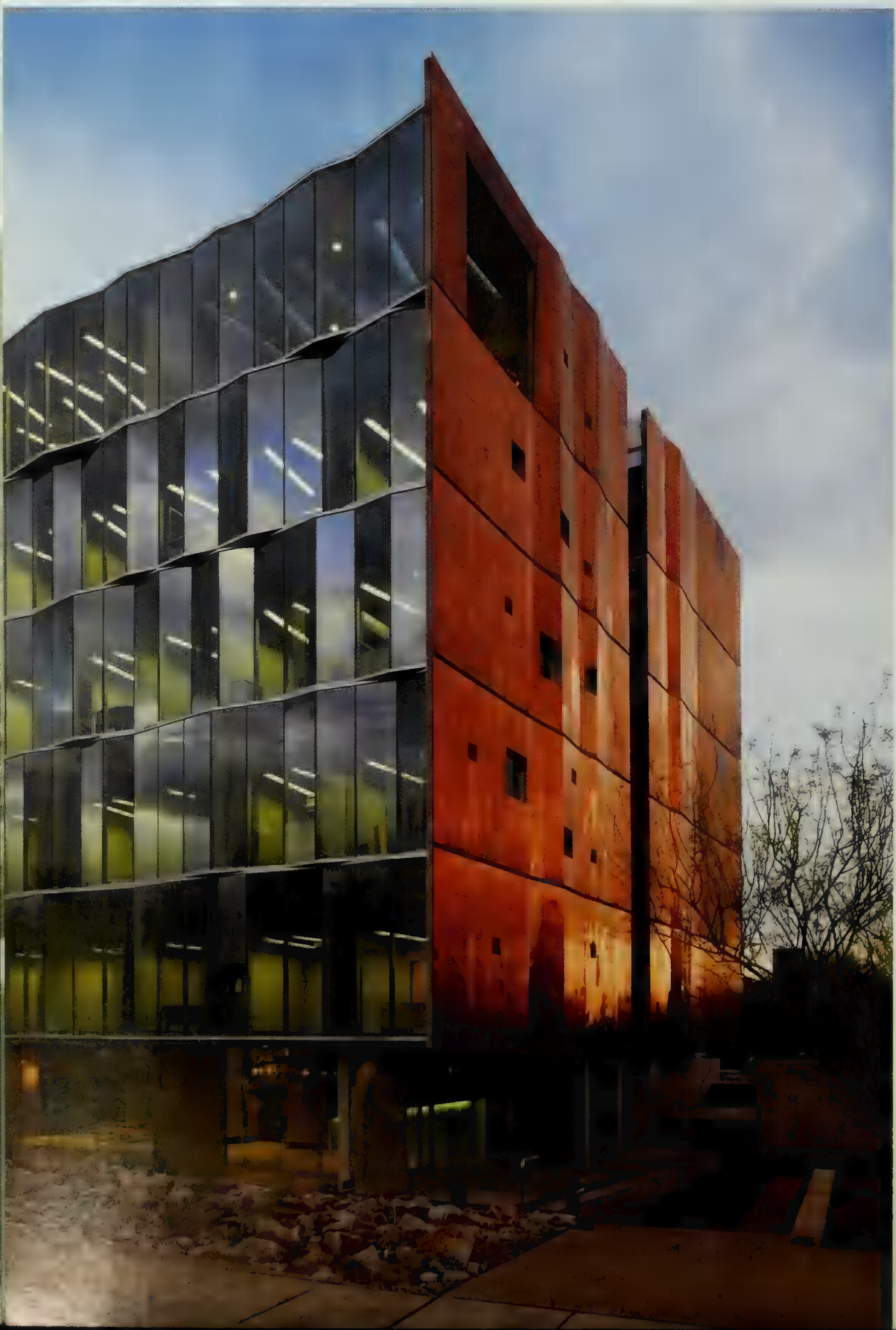
Simple, timeless, unadorned geometric shapes also influenced the work of Edward Larrabee Barnes, FAIA, the posthumous winner of this year's AIA Gold Medal. Barnes's firm also received AIA's Firm Award in 1980 and, in 1994, the 25 Year Award for Haystack Mountain School of Crafts on Deer Isle, Maine. This grouping of shingled cottages proved that his ideas are as powerful in small scale as they are in large, urban buildings.

Indeed, a deft interpretation of scale may be the thread that links the aforementioned winners with Leers Weinzapfel, this year's winner of the Firm Award. The firm's projects are stellar without sticking out, gracefully insinuated into urban life. The meaningful dialogue between architecture and context is what transcends time and what will ultimately preserve the environment for generations to come. *Diana Lind*

ARCHITECTURE





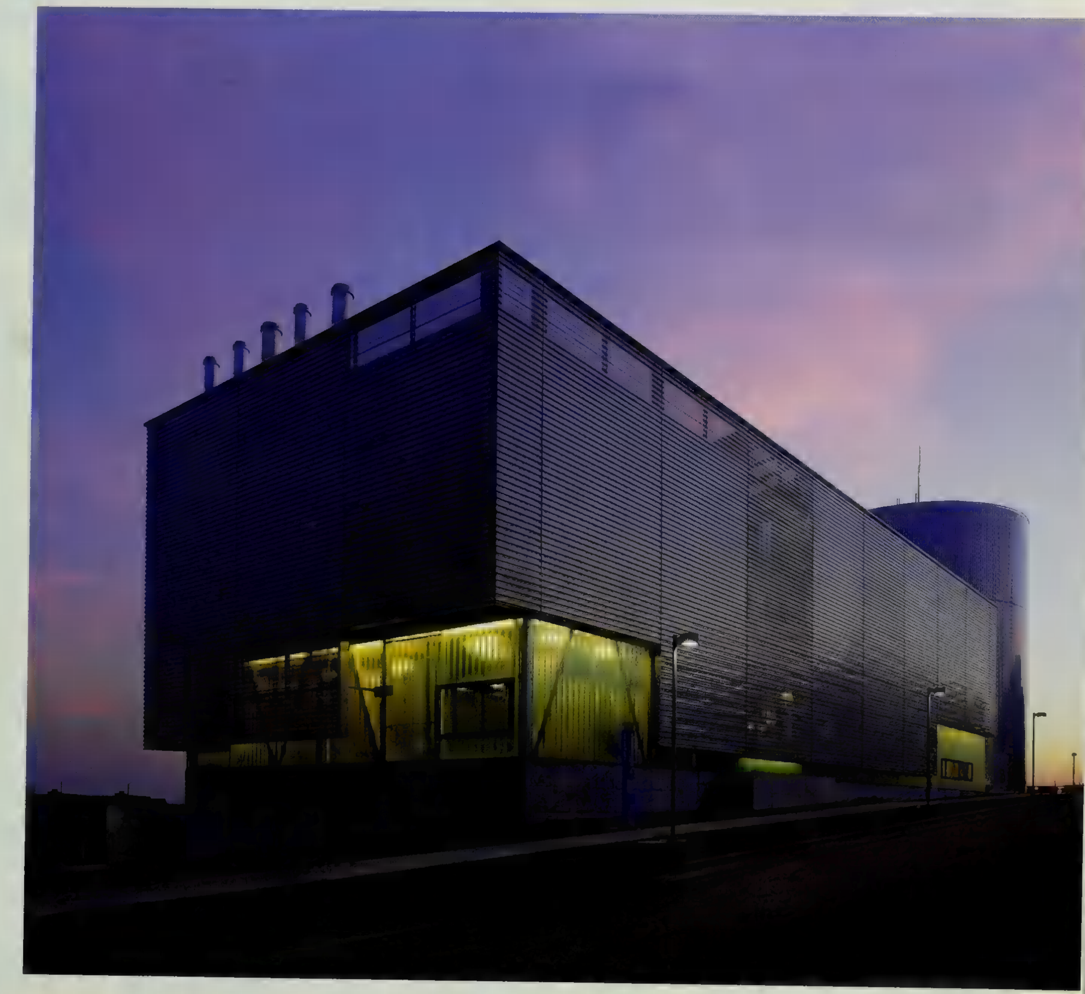


Meinel Optical Sciences Expansion
Tucson, Ariz.
Architect: *Richärd + Bauer*

This research laboratory is a 47,000-square-foot expansion of the University of Arizona's optical sciences department. The building contains state-of-the-art optical research labs, teaching labs, classrooms, interaction areas, and research offices for the world-renowned program. The building's design is conceived as an abstraction of landmark inventions in the history of optics, such as the camera obscura. Within the simple volume, daylight is introduced by skylighted shafts that illuminate interior spaces. The cast-in-place concrete structure is sheathed in a copper alloy that patinates to a reddish bronze hue, recalling the color of the brick featured throughout the campus.

University of California, Merced Central Plant
Merced, Calif.
Architect: *Skidmore, Owings & Merrill*

As part of the first phase of construction of a new university campus serving the state of California, this plant plays a key role in achieving the ambitious sustainable-design goals outlined by its Board of Regents. The complex comprises a three-story plant building, a 30,000-ton-an-hour thermal storage tank, and a telecom building inspired by the Central Valley's vernacular architecture. The exterior walls of the plant and tank are clad in corrugated-metal panels similar to those found on the area's ubiquitous grain silos. Channel glass wraps the base of the building, allowing daylight inside. The project features numerous sustainable initiatives that include diverting 77 percent of waste from landfills and using recycled products.

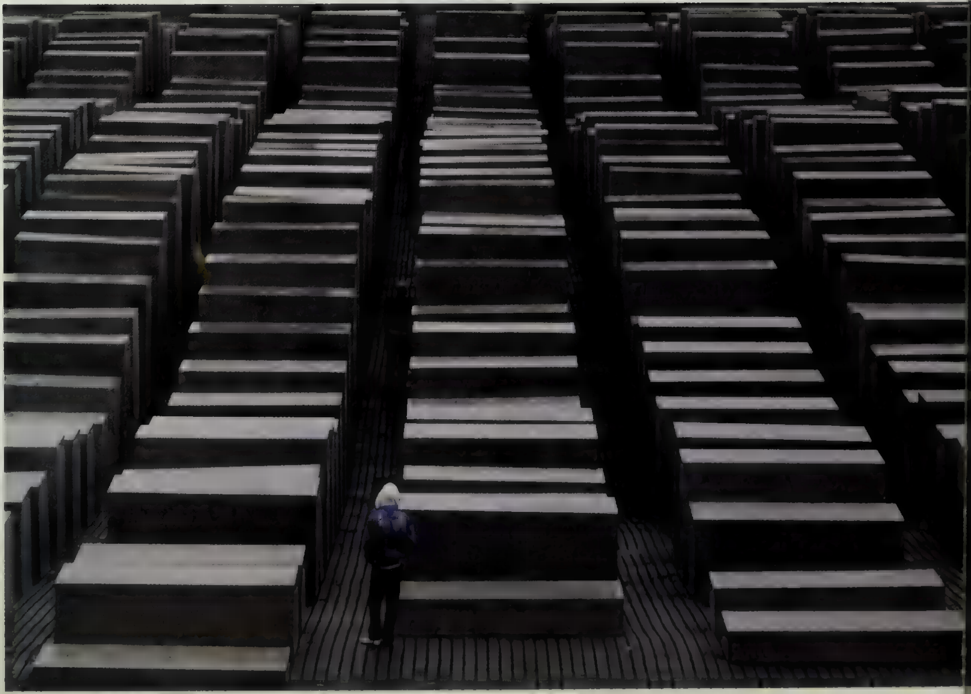


Spencertown House
Spencertown, N.Y.
Architect: *Thomas Phifer and Partners*
[RECORD, April 2004, page 122]

The 6-foot-high concrete retaining wall of this 2,900-square-foot house defines and organizes the spaces within it. The entry and living spaces are open to views and arranged in a linear fashion along the downhill side of the wall under a gently vaulted, wing-like roof. Windows and doors are oriented to maximize cross ventilation, eliminating the need for air-conditioning. Banking the entire structure into the hillside created additional energy savings.

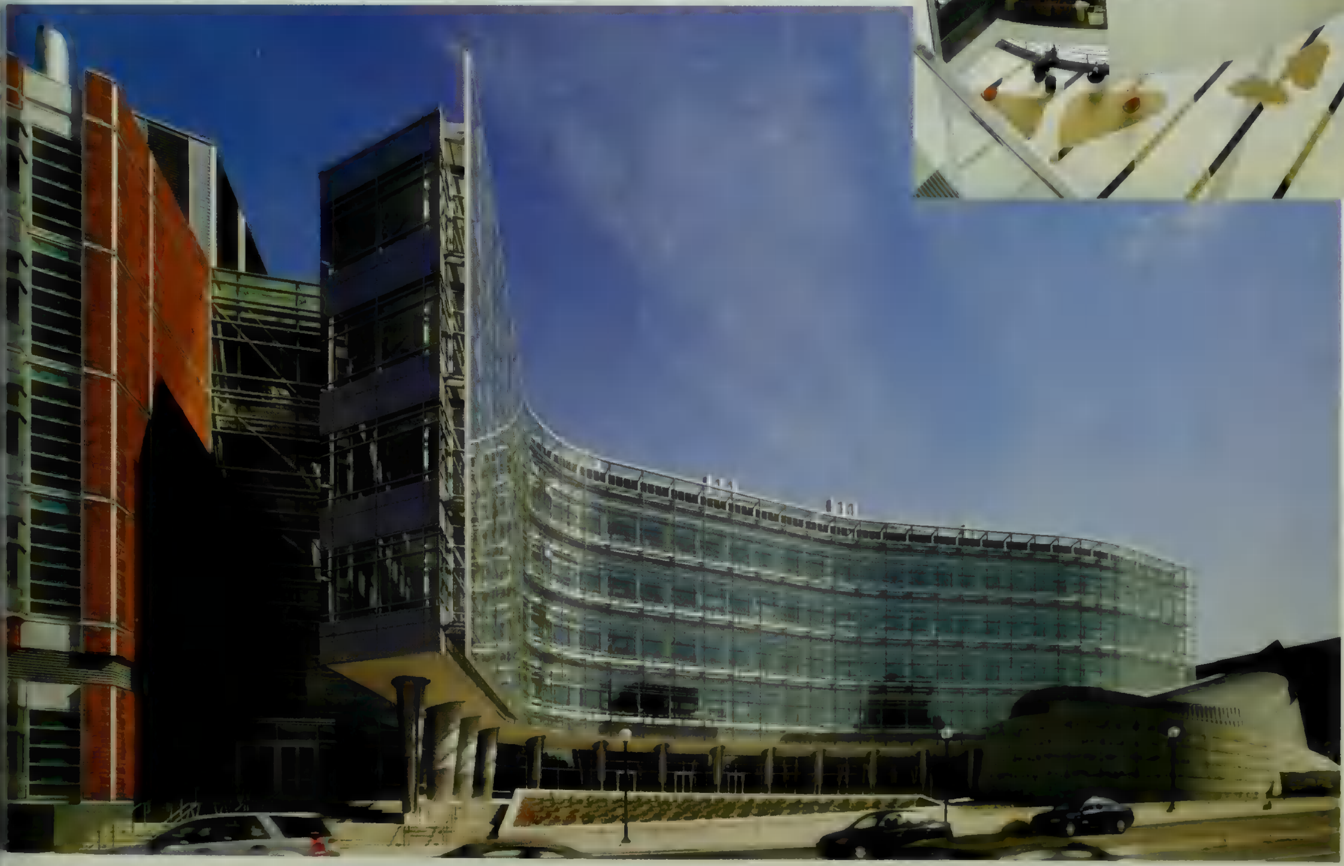
Memorial to the Murdered Jews of Europe
Berlin, Germany
Architect: *Eisenman Architects*
[RECORD, July 2005, page 120]

Previously a "no-man's-land" in East Berlin, this 5-acre Memorial to the Murdered Jews of Europe is now filled with a grid composed of 2,711 concrete stelae, each approximately 37 inches wide, 8 feet long, and up to 13 feet high. The pillars, many of which lean 1 to 2 degrees off center, are set on an undulating ground and spaced so that only one person at a time can pass between them. Pedestrians can enter the site from any side, at any time, making it a truly public space. Beneath the field, four galleries present educational exhibitions.



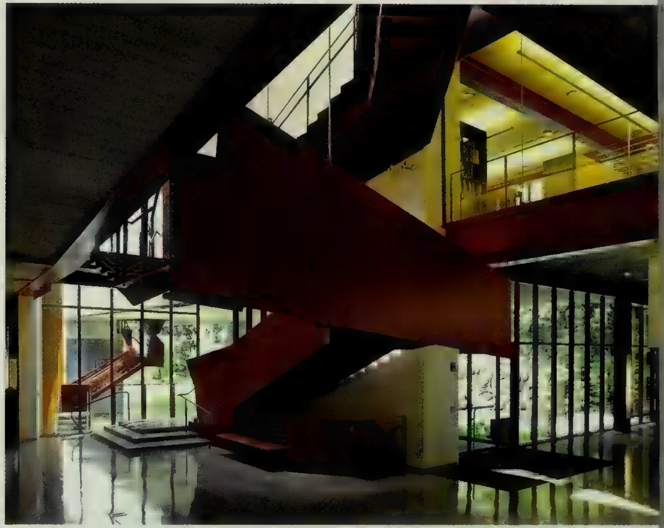
University of Michigan, Biomedical Science Research Building
Ann Arbor, Mich.
Architect: *Polshek Partnership Architects*

This 435,000-square-foot building provides state-of-the-art laboratory and research facilities, dramatized by a curved double-glass facade. This rain-screen curtain wall improves insulation, diminishes air filtration, and should minimize maintenance over time. The rectilinear biomolecular research labs, 250 in all, are clad in terra-cotta and stainless-steel panels. They are connected by four walkways bridging a central atrium that serves as a casual social space.



School of Art and Art History, University of Iowa
Iowa City, Iowa
Architect: *Steven Holl Architects*
[RECORD, January 2007, page 92]

This 70,000-square-foot building includes facilities for sculpture, painting, printmaking, graduate studios, administrative offices, a gallery, and a library. The building explores "formless" geometries, spaces where the outline of the volume is implied rather than explicitly rendered. Flexible studios open to the outdoors in warm weather. The main horizontal passages serve as meeting places with interior glass walls that reveal work in progress. Around the perimeter, spaces overlook, overlap, and engage the surrounding natural landscape.



Dr. Theodore T. Alexander, Jr. Science Center School
Los Angeles
Architect: *Morphosis*
[RECORD, May 2006, page 132]

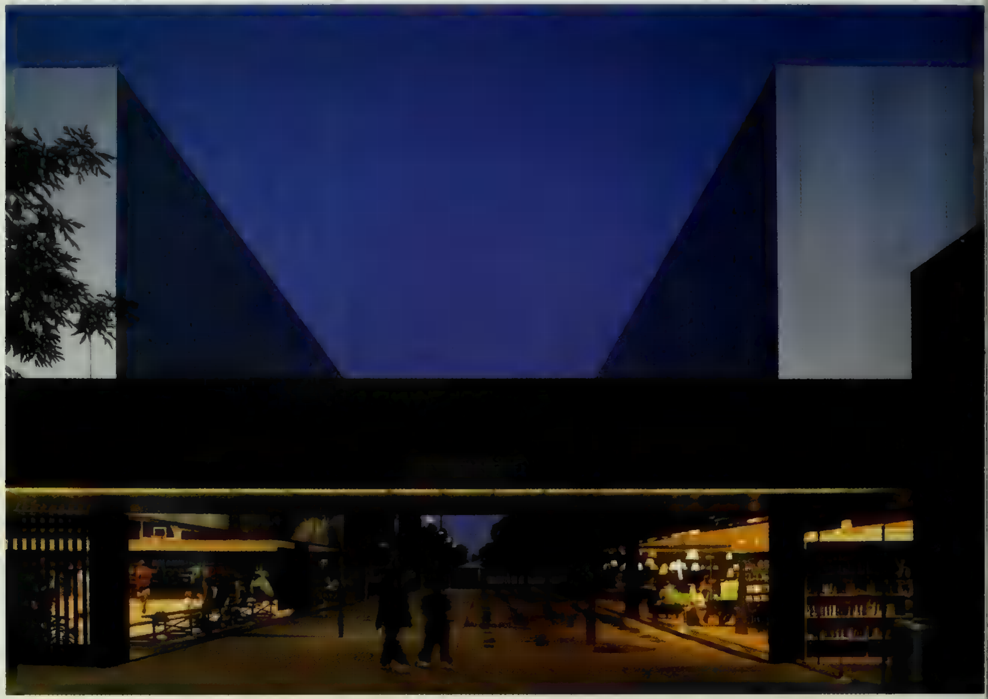
Located in South Central Los Angeles, this public elementary school features a 1919 armory building converted into an open two-story atrium with a bamboo garden. Skywalks above the garden and meeting spaces within it create opportunities for social gathering. Libraries, laboratories, meeting rooms, and classrooms all flank this space. A new building burrowed into the ground dissolves the boundaries between land and structure. Clusters of classrooms share common rooms, fostering a flexible teaching environment.

Canada's National Ballet School: Project Grand Jeté, Stage 1: The Jarvis Street Campus
Toronto, Canada
Architect: *Kuwabara Payne McKenna Blumberg Architects/ Goldsmith Borgal & Company Limited*

This ballet school is the only institution in North America to offer an integrated program of professional dance training, advanced-level academic education, and residential living all on one site. This project completes the first stage of the school's plan to create a student-centered facility. Conceived as a vertical campus of three transparent buildings, the total project included 180,000 square feet of new construction and the adaptive reuse of two buildings. The tallest building fuses architecture, dance, movement, and spectacle in a series of stacked, horizontal platforms ("stages") that project the building's program out to the city. A fully glazed curtain wall on its east facade offers views of the dancers, who in turn have the city as both backdrop and audience.

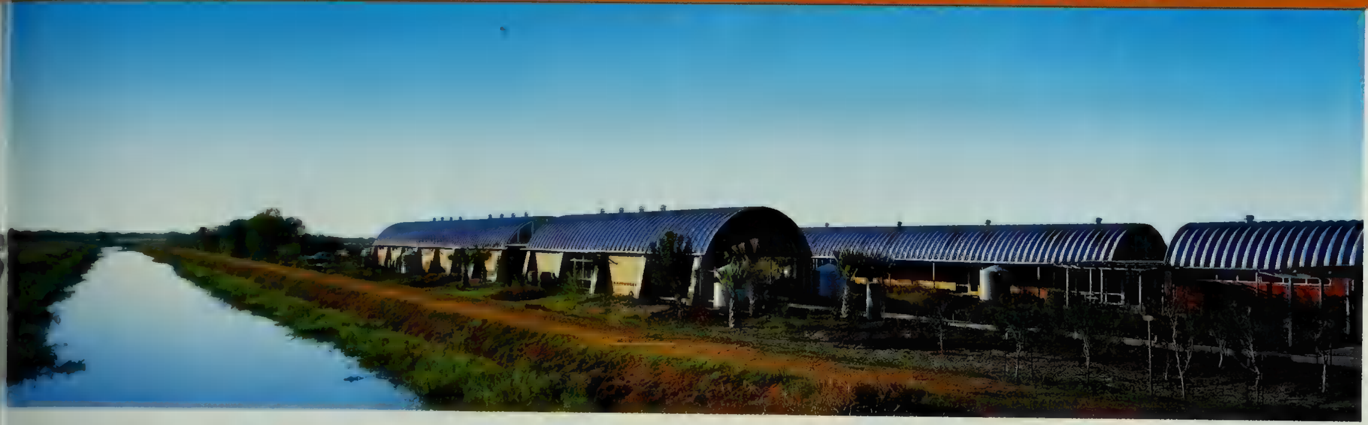
Palo Verde Library/
Maryvale Community Center
Phoenix
Architect: *Gould Evans Associates/*
Wendell Burnette Architects
[RECORD, October 2006, page 125]

This 16,000-square-foot library and 27,000-square-foot community center bring together the activities of mind and body. The buildings sit at one edge of a public park and strengthen their connection to the outdoors with 8-foot-tall glass walls around their perimeter. The two volumes feature column-free, top- and bottom-lit spaces that allow for abundant daylight. To meet the acoustic requirements for the library, the interior is wrapped in recycled aspen panels inspired by handmade paper books.



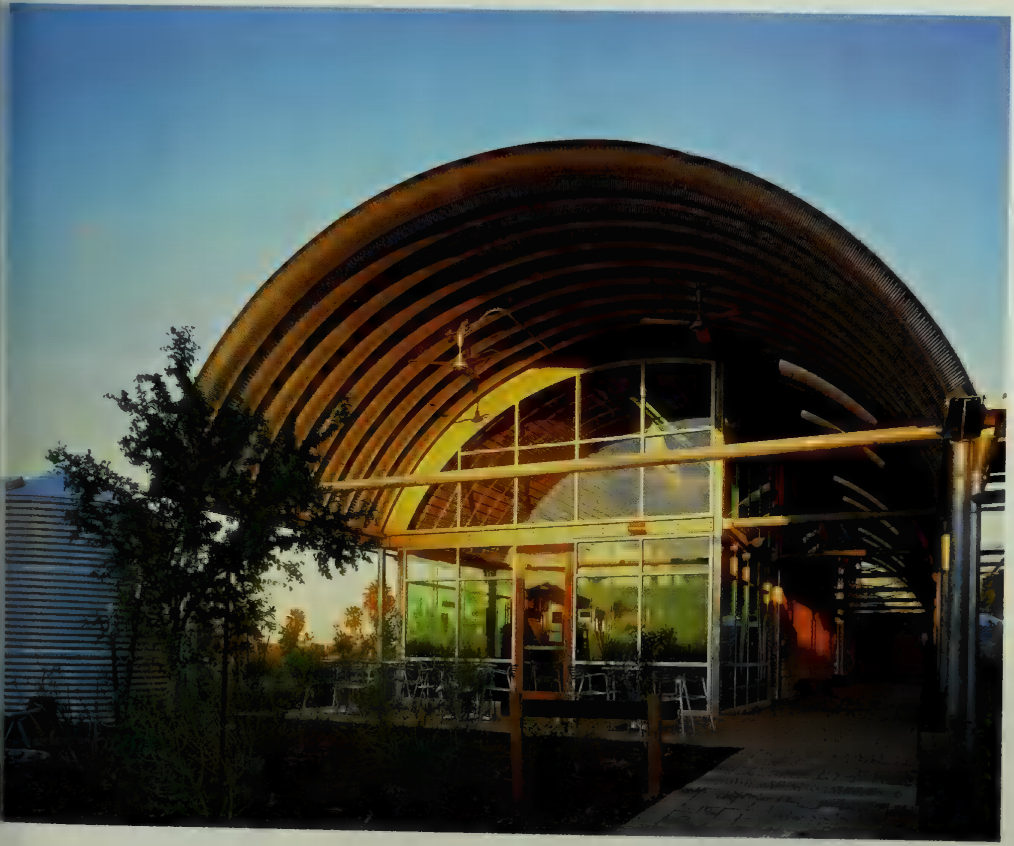
Solar Umbrella House
Venice, Calif.
Architect: *Pugh + Scarpa*
[RECORD, April 2005, page 176]

Located on a 41-foot-by-100-foot lot, the Solar Umbrella House (inspired by Paul Rudolph's 1953 Umbrella House) transforms an existing 650-square-foot bungalow into a 1,800-square-foot residence. Passive and active solar energy render the house 100 percent energy neutral. Recycled, renewable, and high-performance materials are specified throughout. Landscape treatments were designed for their aesthetic appeal as well as their physical impact on the natural setting.

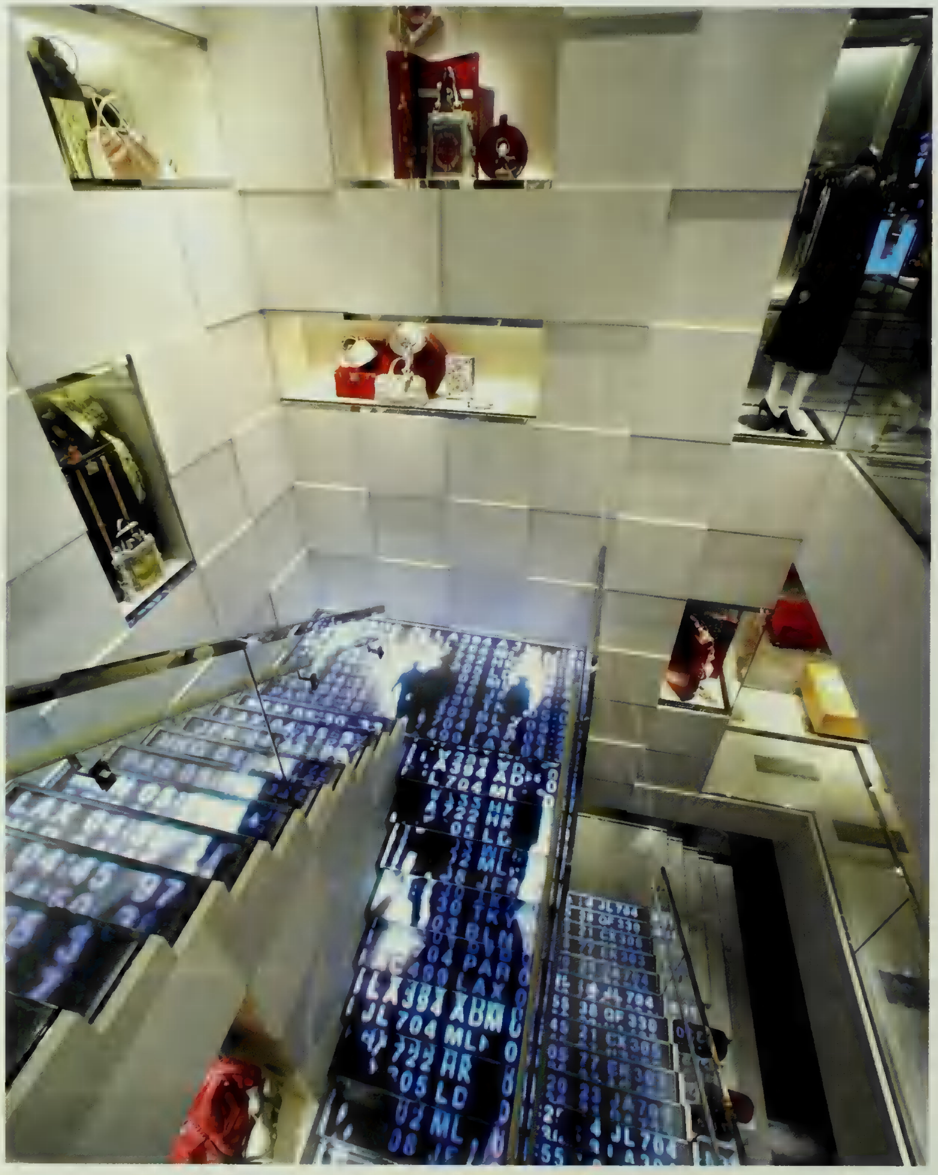


World Birding Center Headquarters
Mission, Tex.
Architect: *Lake/Flato Architects*

This visitors' center is located in one of the richest bird habitats in the world. It creates a gateway between agricultural land and a 1,700-acre native habitat preserve. The architects aimed to "do more with less" by reflecting the regional vernacular, responding to the harsh climate, and minimizing disturbance of the existing habitat. Structures run east to west to maximize airflow; exterior trellises shade windows from the direct sun; and a narrow floor plate allows for optimal daylighting. Structural arch panels enclose spaces using 48 percent less steel by weight compared to traditional steel framing. A 47,000-gallon rainwater collection system is used for irrigation.

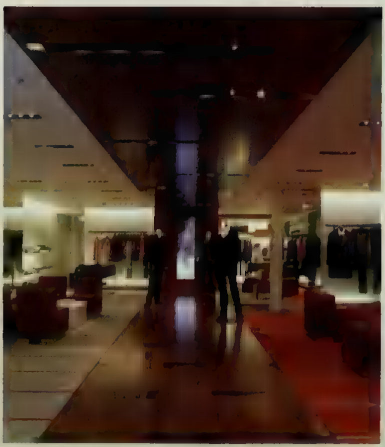


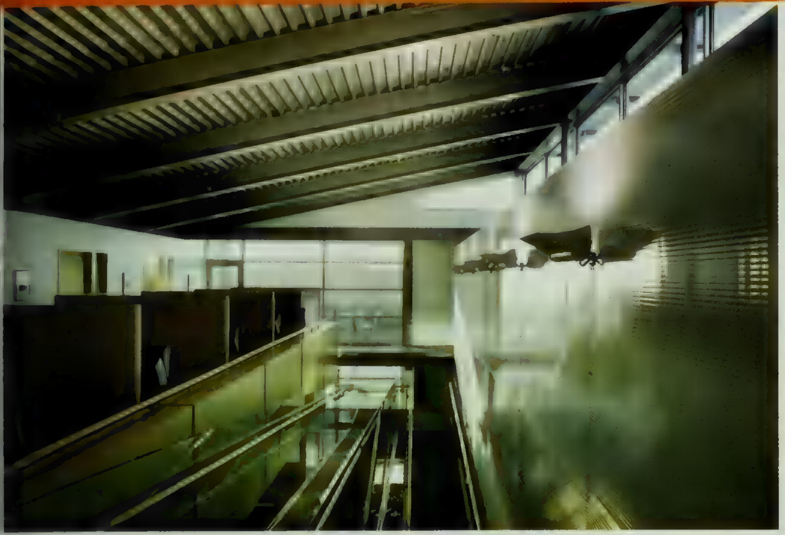
INTERIORS



Louis Vuitton Landmark
Hong Kong
Architect: *Peter Marino Architect; associate architect: dcmstudios (formerly Denton Corker Marshall, Hong Kong)*

Occupying a prominent corner in the central district of Hong Kong, this 25-foot-high, semitransparent box is flooded by daylight as well as electric illumination. The main stair volume, designed to look as if carved from a solid block of stone, connects the project's three levels. Here, sandblasted-glass treads feature built-in LED panels projecting video images. These videos can be viewed while walking up the stairs or from ground level, looking at the reflected images in a ceiling mirror. A fine-jewelry store that can be accessed both from the boutique and from a separate entrance has its own suspended staircase, continuing the narrative of the main stair.



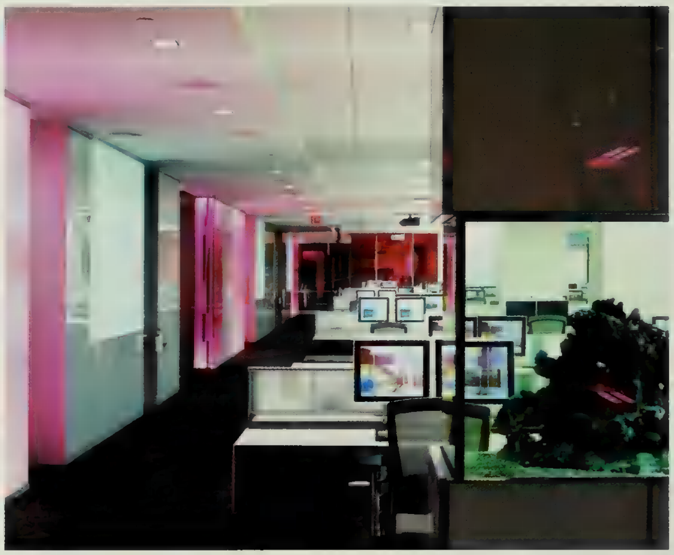


Better Business Bureau Heartland Office
Omaha, Neb.
Architect: *Randy Brown Architects*

The Better Business Bureau's previous location in a gloomy, leased office space in a strip mall did not provide the organization with enough room to offer basic services. For its new home, architect Randy Brown created a physical manifestation of the bureau's core values of integrity, stability, and openness—developing a design solution that is both cost-efficient and environmentally conscious. The small site dictated a two-story solution, with each evel having an ADA-accessible entrance at grade. Brown manipulated the roof section (top left) so that a central clerestory window could bring extra daylight to he interior. The project was contructed from moderately priced ocal materials. Exposed strucural systems convey the agency's modern image, while keeping the budget to $100 per square foot.

Bloomberg LP Headquarters
New York City
Architect: *STUDIOS Architecture*
[RECORD, March 2006, page 138]

For this project, the architects eschewed conventional approaches to office space by rethinking circulation, privacy, graphics, and art. Everyone at the company, from the C.E.O. to the interns, sits in an open-plan workstation environment. In order to make office space as economical as possible, the architects developed a flexible desk system and added many more conference rooms than the norm. Yet all the conference-room walls are glass, with a wide range of colors and textures used for variety, and to provide privacy.

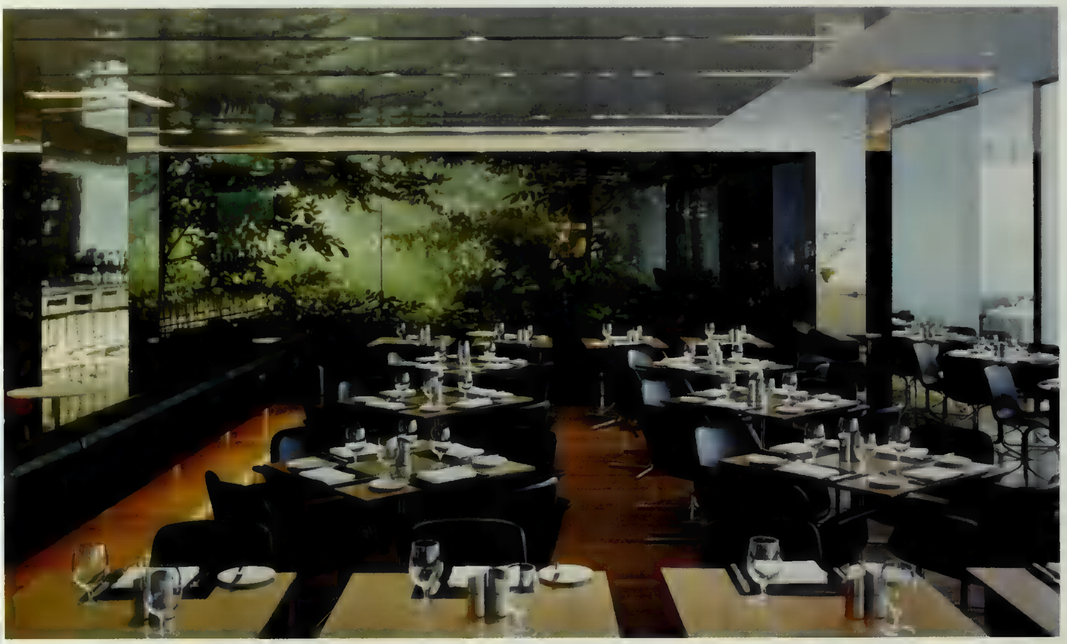


Haworth Chicago Showroom
Chicago
Architect: *Perkins + Will/ Eva Maddox Branded Environments [RECORD, September 2004, page 216]*

A complete renovation of Haworth's 29,000-square-foot flagship showroom in Chicago's Merchandise Mart received a LEED Gold certification in the commercial interiors pilot program. Within a Modernist design setting, green performance features include separate low-energy, high-quality HVAC equipment, natural light throughout, reuse of materials salvaged from the prior showroom, and use of renewable materials.

ImageNet, Carrollton
Carrollton, Tex.
Architect: *Elliott + Associates Architects*

This project transformed a lifeless, tilt-up concrete building into a space of high drama for selling, servicing, and warehousing copy machines. The architects employed blue light to bring "sky" into the office space, and installed a new interior wall to create a covered, climate-controlled porch for client meetings and presentations. A tangle of data and power cords suggests the company's inventiveness, while exposed concrete walls, vinyl-backed batt insulation, galvanized metal, and exposed steel studs all communicate an ethos of economy. After just two months of operating in the new facility, the company saw its sales skyrocket 50 percent.

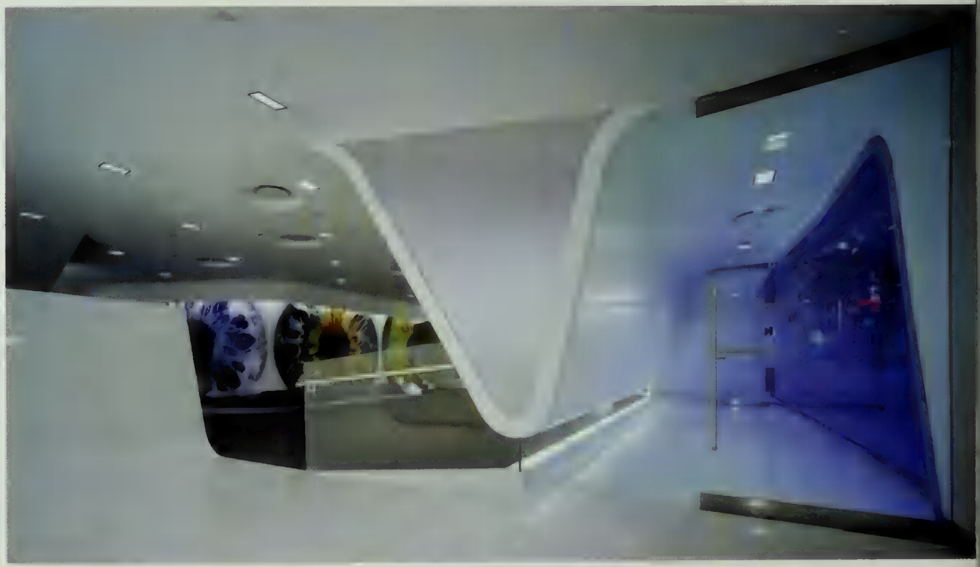


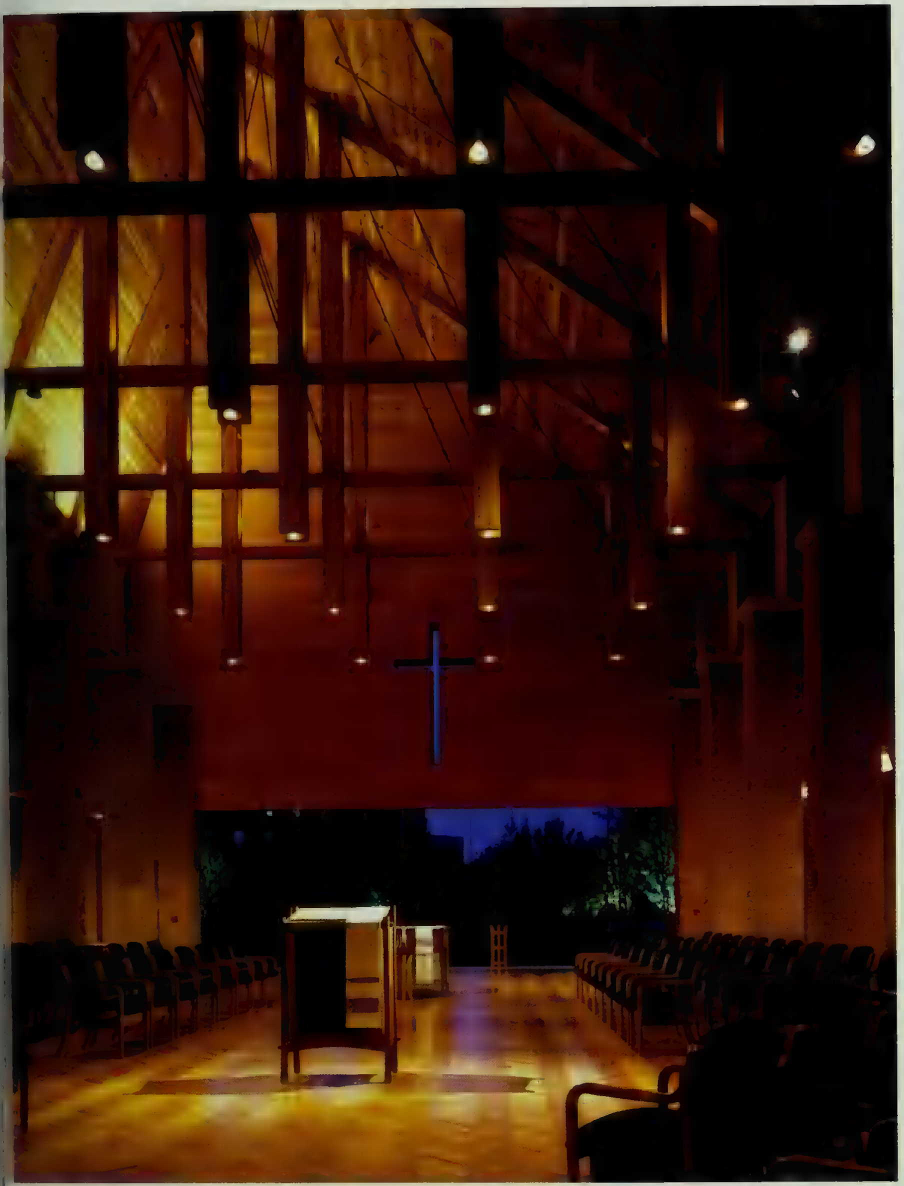
The Modern
New York City
Architect: *Bentel & Bentel*
[RECORD, September 2005, page 124]

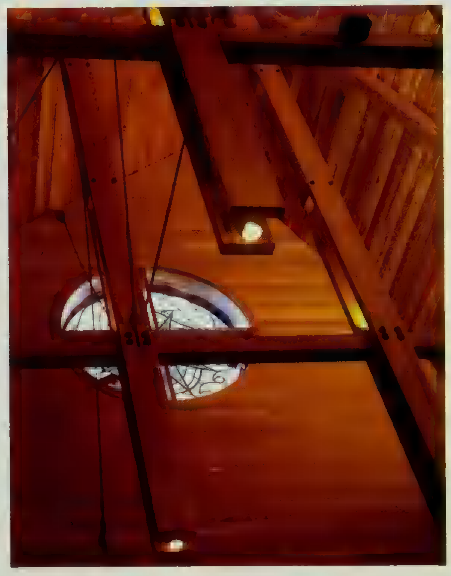
Located in the Museum of Modern Art, this restaurant sits at the intersection of the original museum building from the 1930s, an adjacent museum annex and sculpture garden from the 1960s, and a two-year-old museum addition. The architects established a planar rectilinearity, with the main elements defining the restaurant space, then inserted sinuous, frosted-glass walls as counterpoints. The glossy white ceiling and polished stainless-steel columns in the bar room expand the apparent height and width of the original space.

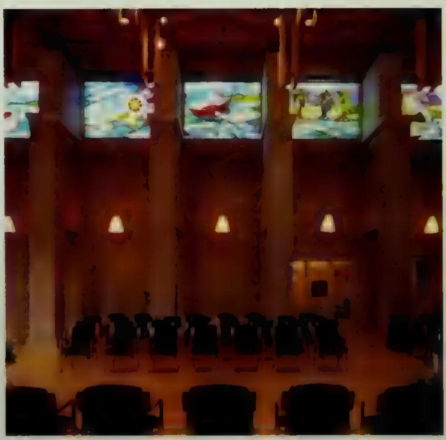
Endeavor Talent Agency
Beverly Hills, Calif.
Architect: *NMDA; associate architect: Interior Architects*
[RECORD, September 2005, page 116]

This 63,000-square-foot headquarters for the world's third-largest talent agency occupies build-out space in a 1960s structure on L.A.'s Wilshire Boulevard. Designed for the agency's 200 employees, the offices feature curving walls and ceilings that wrap and shape spaces, creating an eerie sense of immateriality. Expressive design moves in ceiling/wall deformations surround the lobby and conference rooms. A first-floor screening room faces the street, creating a public identity for the agency; its folded facade and smooth, white undulating ceiling and wall surfaces allow passersby to peek in, inciting a kind of voyeurism similar to cinema or celebrity-watching.



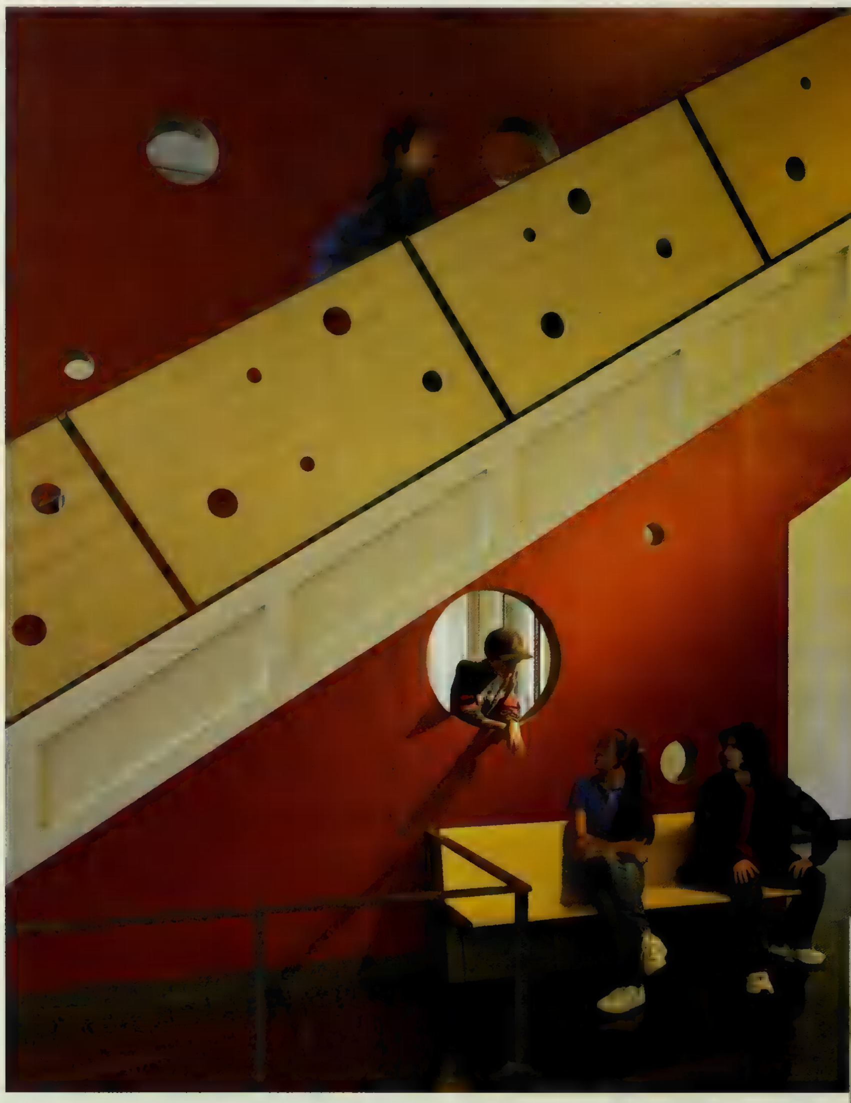






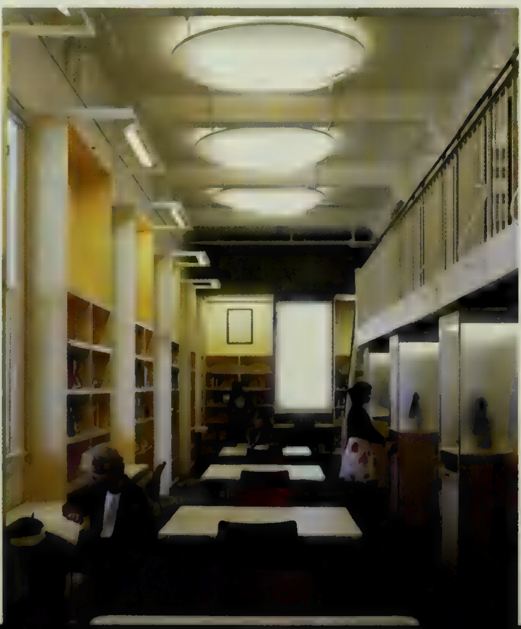
St. Mary of the Springs
Columbus, Ohio
Architect: *Nagle Hartray Danker Kagan McKay Penney Architects*

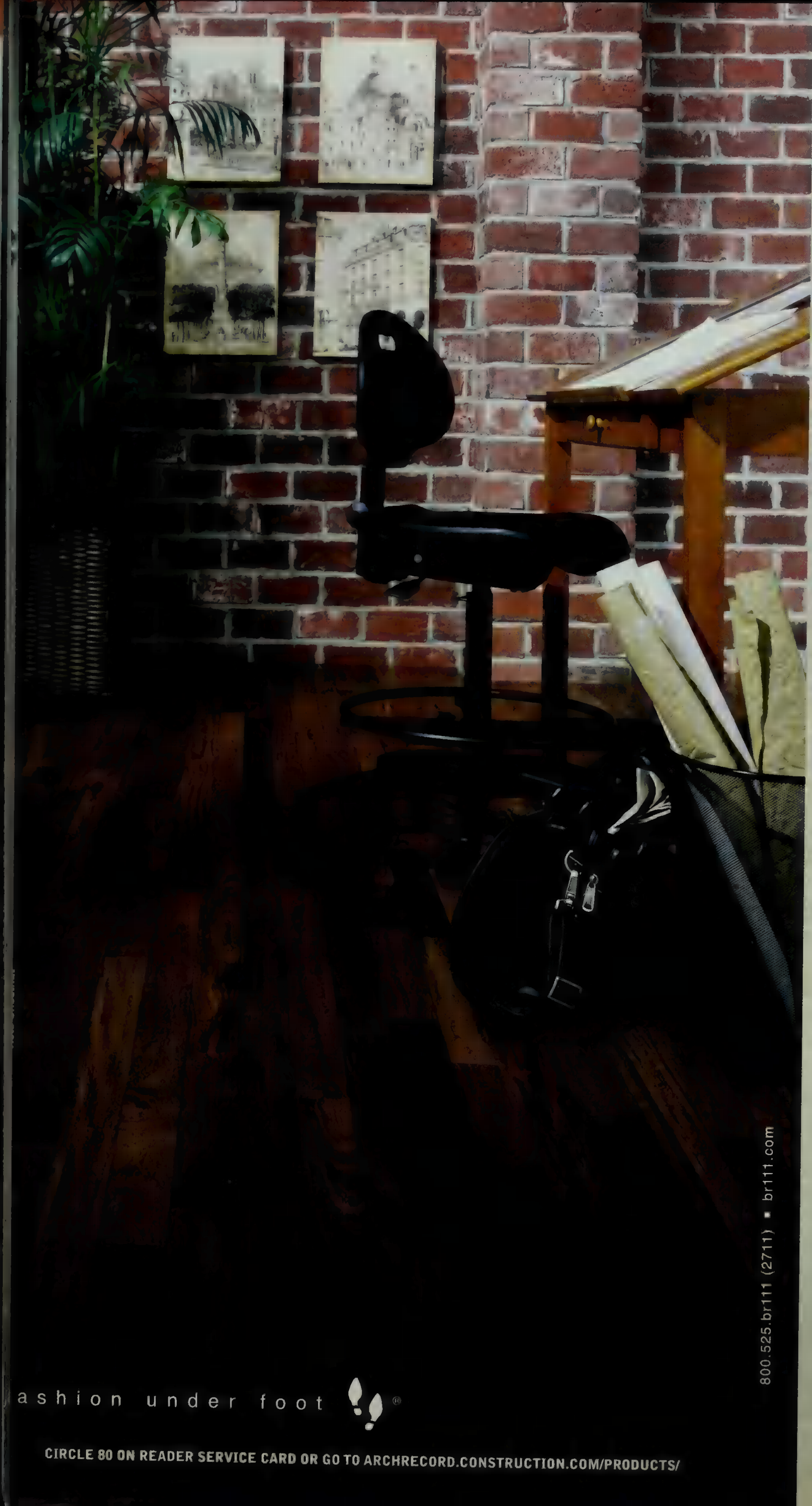
The architects replaced a tradi-ional dormitory-style residence all with a 139,000-square-foot pace that includes 90 resident ooms, a chapel, and dining and dministrative areas. The congre-ation of Dominican Sisters romotes human rights, social jus-ce, and world peace. The project's esign features reflect this mission through the use of natural materials, a frameless, north-facing window that opens chapel views to a private garden, and masonry walls that curve as they extend upward, as if budding from the earth. The walls are supported by seven masonry buttresses, which have openings carved out of their bases to define interior side aisles. Arranged like a single-family home, rooms are clustered to support community living and are centered around a landscaped courtyard on a 30-acre site.



The Bay School of San Francisco
San Francisco
Architect: *Leddy Maytum*
Stacy Architects

Originally designed as a cavalry barracks, this 1912 building was converted into a school that places special emphasis on the interrelationship of science, technology, ethics, and world religions. The architects used these concerns as a metaphor for intertwining old and new elements in their design. Central concrete walls, perforated and brightly colored, slice through the full height of the building to skylights above. Sophisticated, new laboratories anchor both ends of the 400-foot-long building, while new cable trays hang lightly within the historic corridor, carrying lighting, building services, and wireless network transmitters. The design incorporates water and energy sustainability features and offers students a constant dialogue with history by combining old and new elements.





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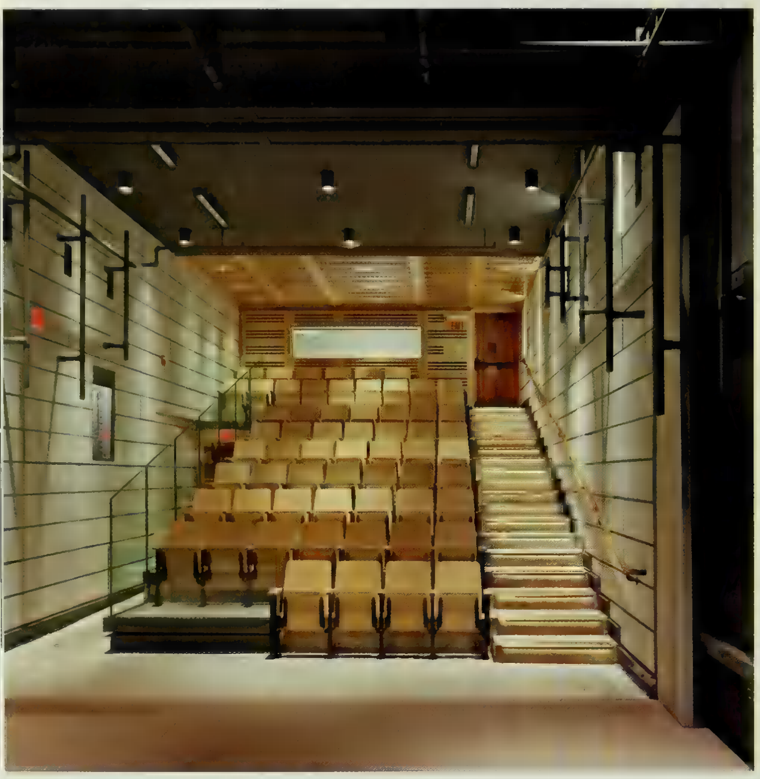
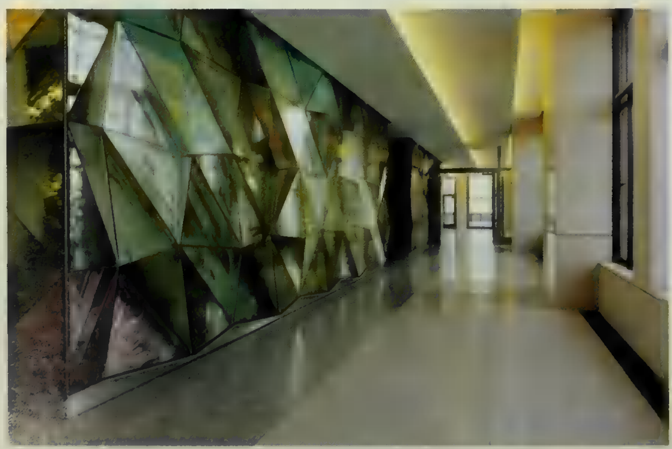


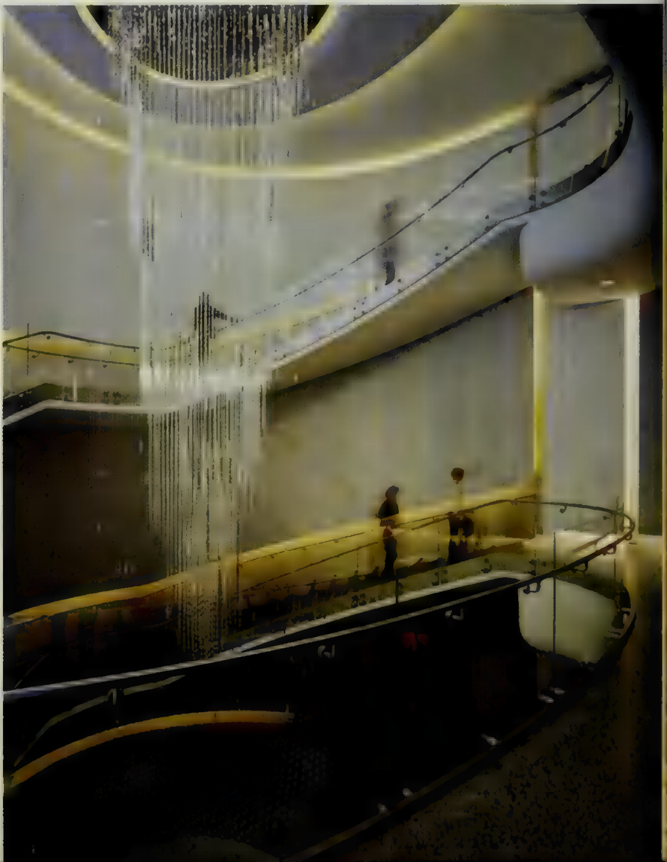
Pierson and Davenport Colleges
New Haven, Conn.
Architect: *KieranTimberlake Associates [*RECORD*, March 2005, page 128]*

These renovations rethink the program and materials of two 75-year-old residential colleges at Yale University. To meld the old and new, the architects removed old building systems, finishes, and roofs, while restoring existing structures. The program was most notably modified in the basement, where pipes, storage, massive foundation walls, and squash courts were replaced with community spaces linked by passages washed in sunlight from above.

Top of the Rock at Rockefeller Center
New York City
Architect: *Gabellini Sheppard Associates; associate architect: SLCE Architects [*RECORD*, June 2006, page 297]*

Following two decades of disuse, the historic observation decks atop 30 Rockefeller Plaza were renovated. New interior spaces enhance the visitor's experience with dramatic features, including a triple-height atrium with an elliptical stair surrounding a light sculpture of 14,000 crystals suspended from above. This fixture, designed by the architect, has the form of an inverted Deco building.





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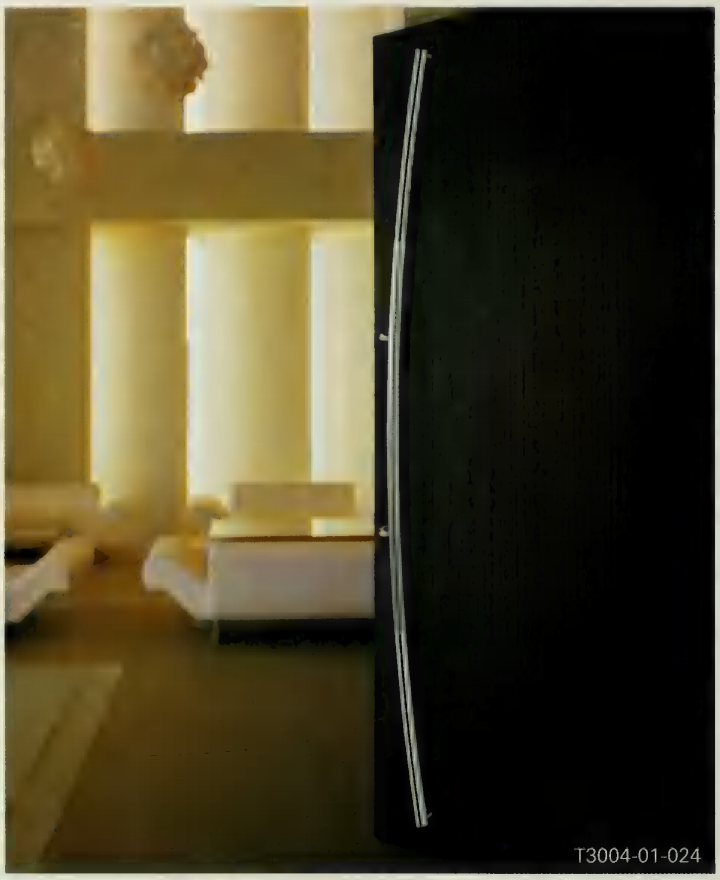

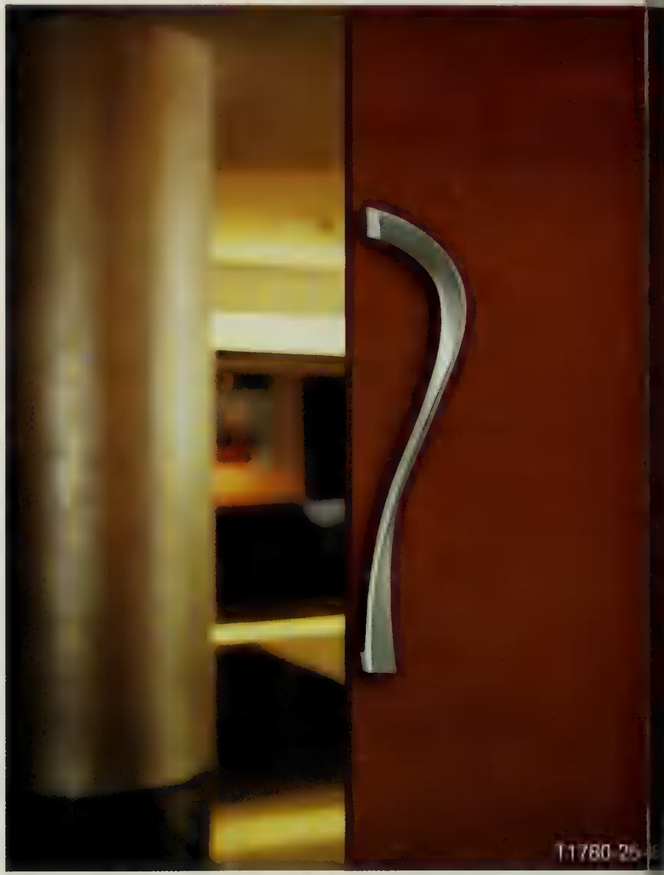

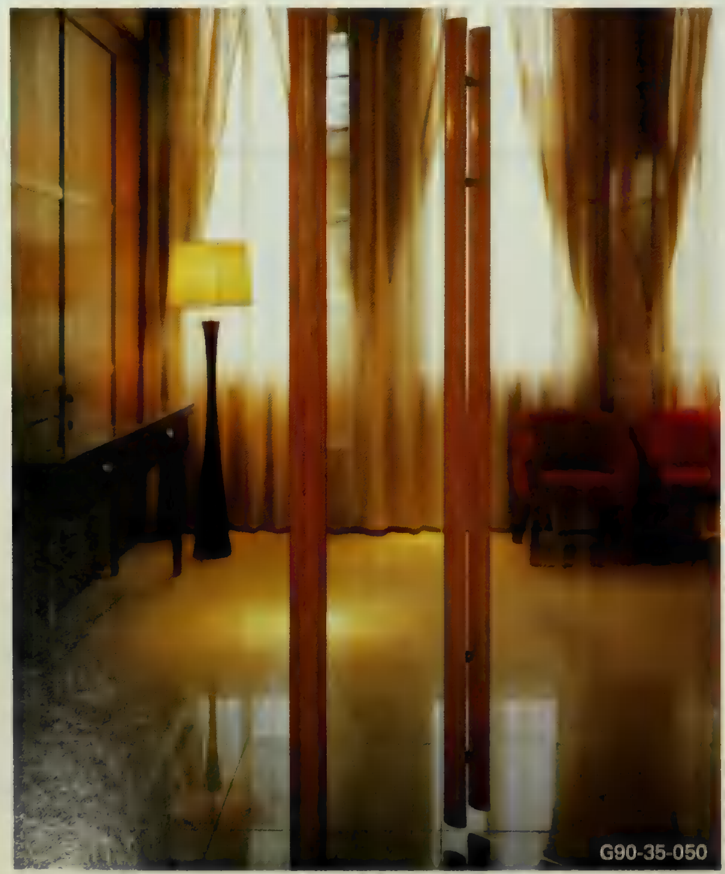

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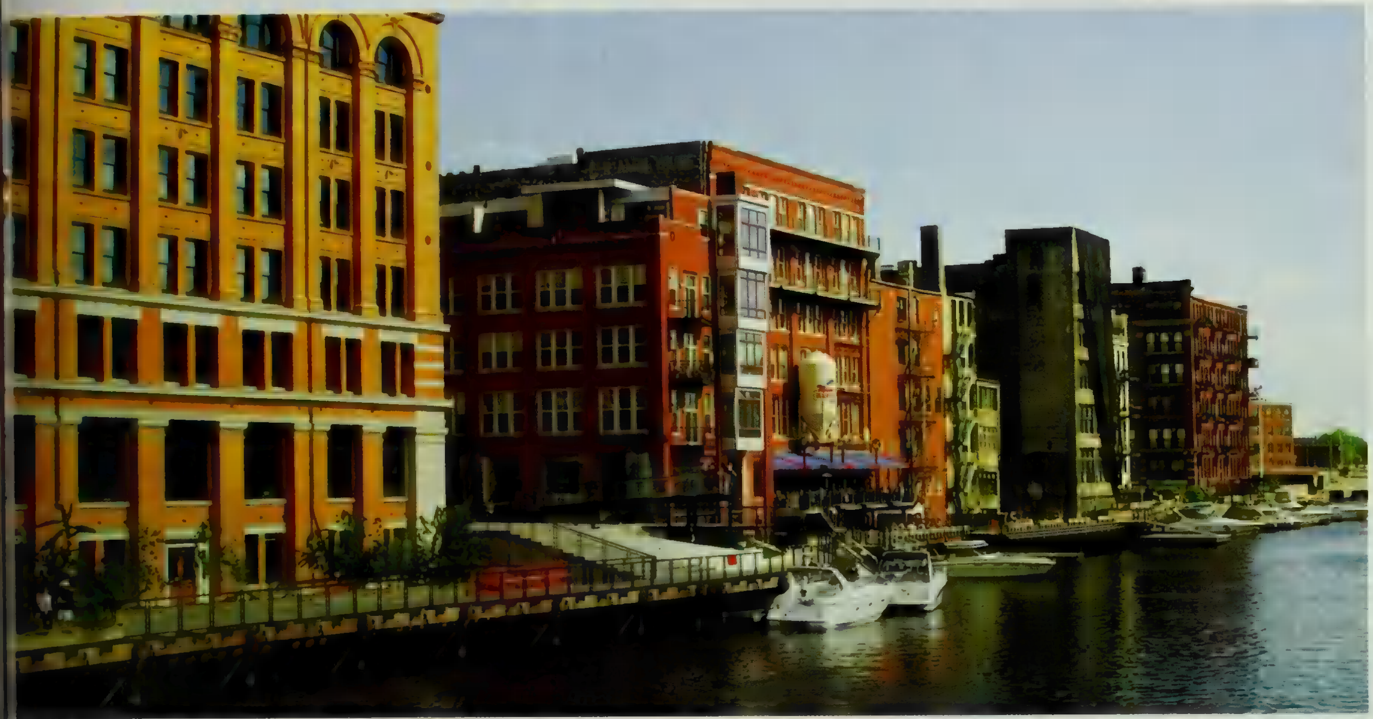
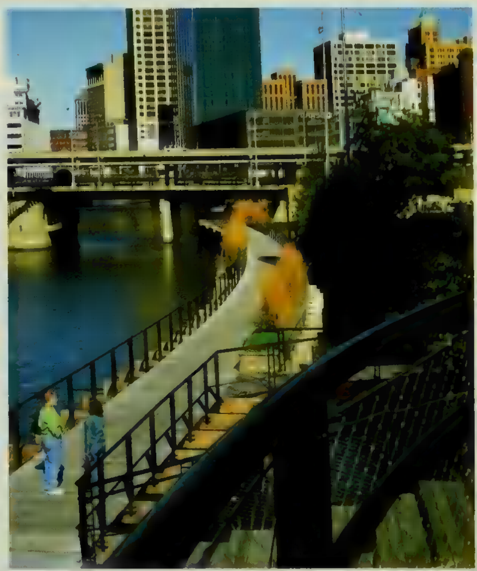
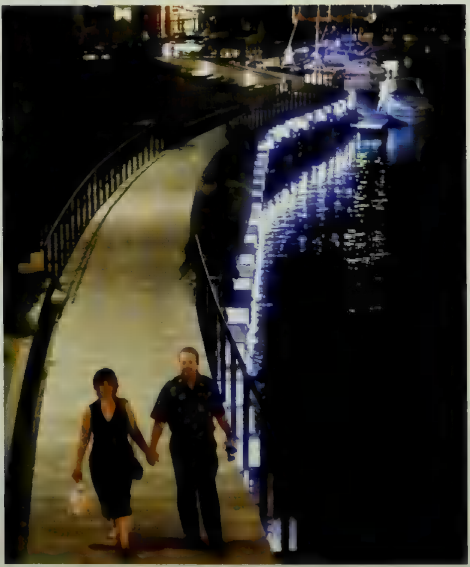






Historic Third Ward Riverwalk
Milwaukee
Architect: *Engberg Anderson Design Partnership*

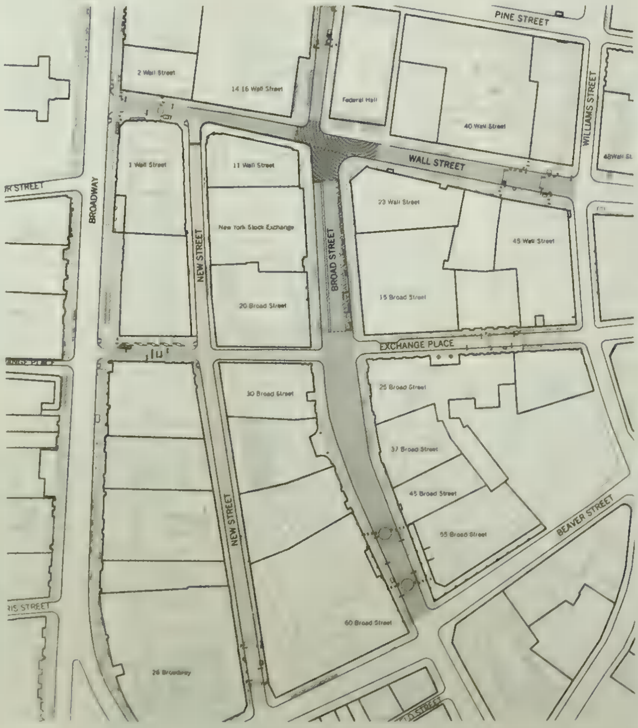
Transforming a forgotten riverfront lined with neglected buildings, abandoned street ends, and parking lots into a vibrant destination with green space and ecreational opportunities defined he goals of this project. In addition o the creation of the Riverwalk, n adjacent ¾-acre parking lot was converted into a new park. nside the park, a 2,000-squareoot interpretive and educational enter features exhibits on urban iver ecological issues. The archiects used renewable materials uch as heavy-timber framing in he construction of Riverwalk, nd designed the project's lightng to provide soft illumination eminiscent of moonlight.

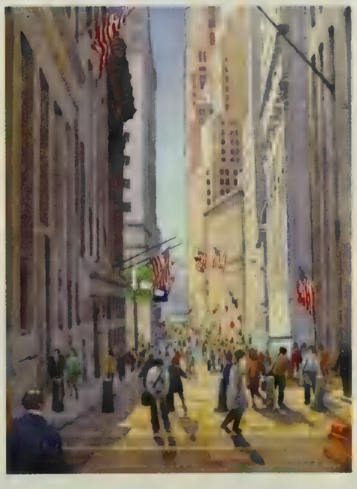
Crown Properties
Gaithersburg, Md.
Architect: *Ehrenkrantz Eckstut and Kuhn Architects*

Developers of 180 acres in Gaithersburg, Maryland, wanted a community of mixed uses, including retail, residential, green space, and public amenities. The architect developed a master plan which, when completed, will comprise over 2,000 new residential units, a park and open space system, a new high school, and a town center with more than 250,000 square feet of retail. Developed around a new transit line, this vibrant community will complement adjacent neighborhood developments with an interconnected system of streets, open space, and pathways. Sustainability will be a key element in the implementation of the plan.

New York Stock Exchange Financial District Streetscapes and Security
New York City
Architect: *Rogers Marvel Architects*

This project evolved as an outcome of 9/11 and the need to create sufficient security for Lower Manhattan's financial district and the area's iconic institutions. Working with key stakeholders, including the police, city agencies, transportation officials, and designers, this comprehensive strategic plan knits together the cultural, historical, and financial landmarks with a security plan that includes a fountain sited in front of the Stock Exchange, as well as NOGO barriers (designed by the architects) that reduce the amount of space devoted to vehicle barriers by half.





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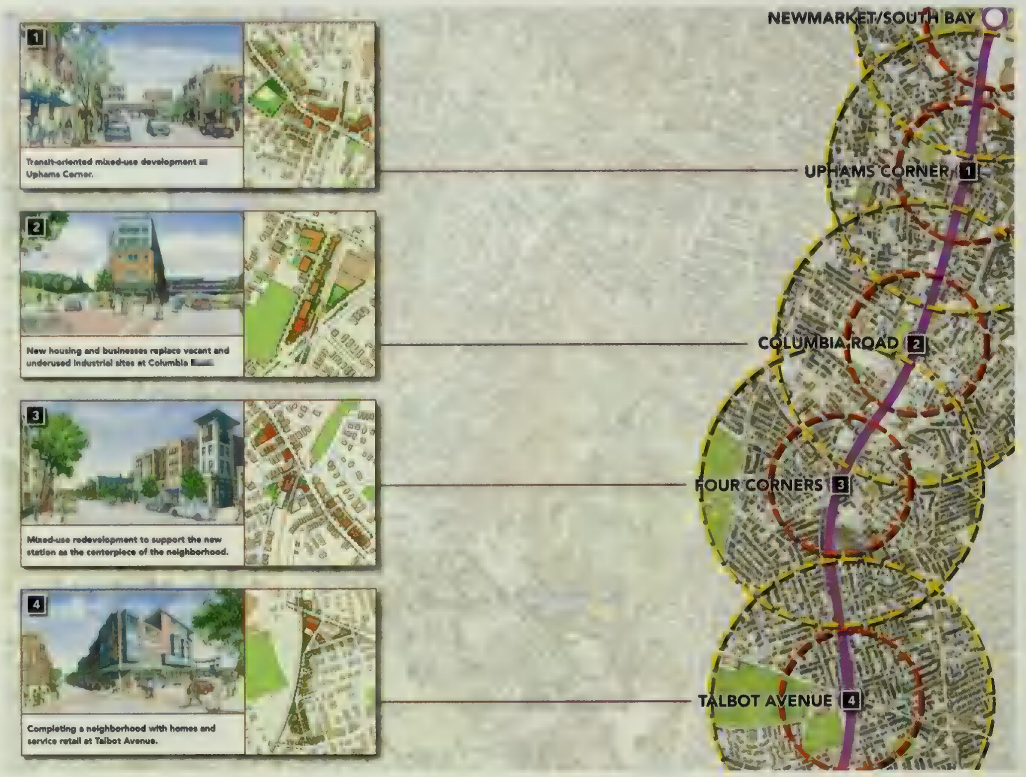
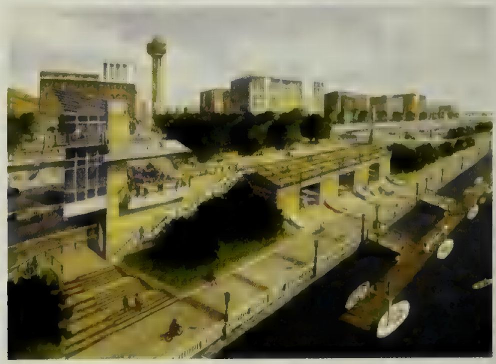

1
Transit-oriented mixed-use development at Uphams Corner.
2
New housing and businesses replace vacant and underused industrial sites at Columbia
3
Mixed-use redevelopment to support the new station as the centerpiece of the neighborhood.
4
Completing a neighborhood with homes and service retail at Talbot Avenue.
NEWMARKET/SOUTH BAY
UPHAMS CORNER 1
COLUMBIA ROAD 2
FOUR CORNERS 3
TALBOT AVENUE 4

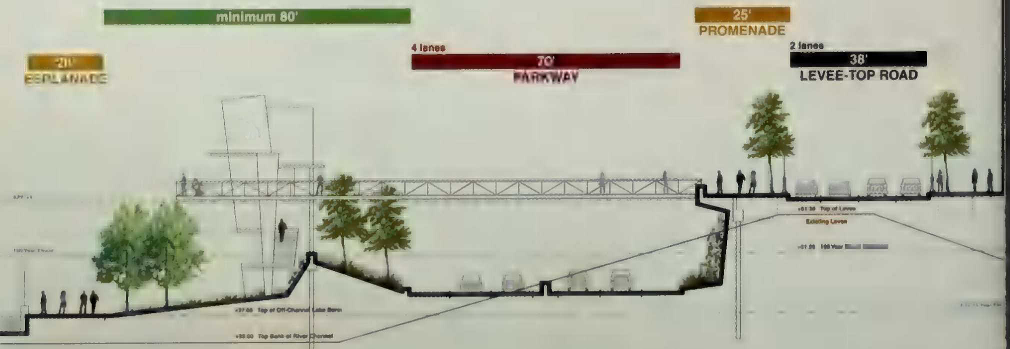
Boston's Newest Smart Growth Corridor: A Collaborative Vision for the Fairmount/Indigo Line
Boston
Architect: *Goody Clancy*

This collaborative, neighborhood-based initiative links several distinct neighborhoods along a 10-mile transportation corridor stretching from downtown to the city's suburban fringe. The plan calls for four rail stations along the new Indigo Line that will connect urban villages to be built on vacant, underused and/or brownfield sites where there is a combined potential for 5,000 new housing units (including affordable ones), and 700,000 square feet of new and rehabilitated commercial space. This mixed-income, mixed-use development will create new clusters of activity around the rail stations.

A Balanced Vision Plan for the Trinity River Corridor
Dallas
Architect: *Chan Krieger Sieniewicz*

For 75 years, the Trinity River has segregated downtown Dallas from the West Dallas and Oak Cliff neighborhoods of the city. Under the architects' new plan, the floodway will be transformed with a meandering river channel, newly forested pockets, wetlands, and 2-mile-long lakes fed with treated urban wastewater. The banks of the Trinity River will become desirable sites for residential and commercial development. Roadway infrastructure, including a reduced-speed parkway, will be designed to be compatible with the new park areas while providing better access and views to development and recreation.





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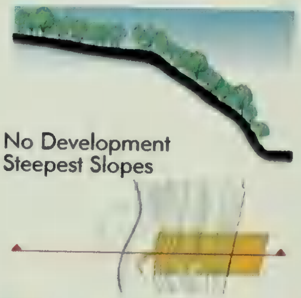
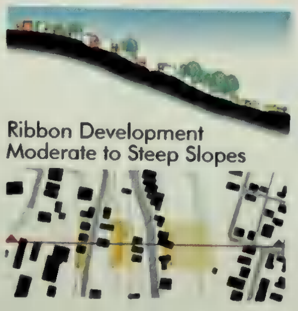
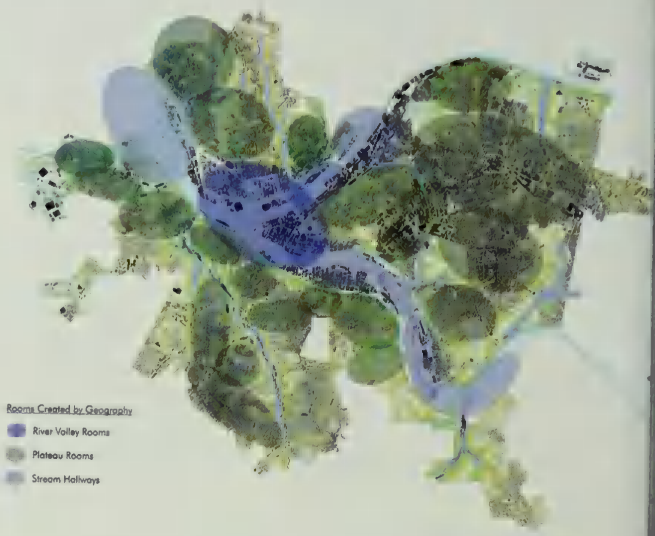
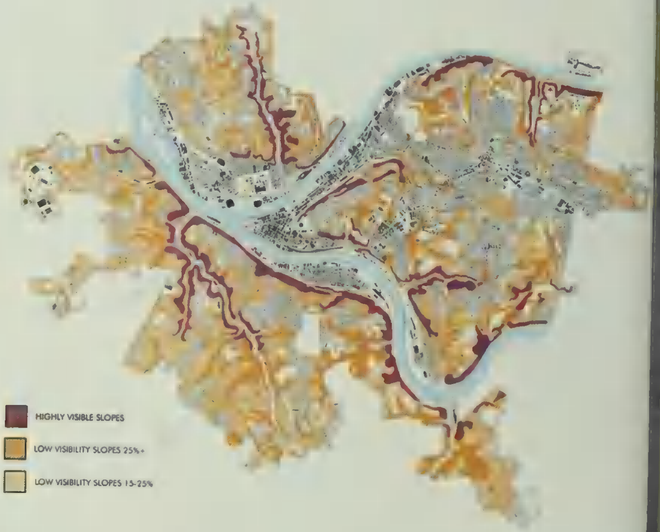
Zoning, Urban Form, and Civic Identity: The Future of Pittsburgh's Hillsides
Pittsburgh
Architect: *Perkins Eastman*

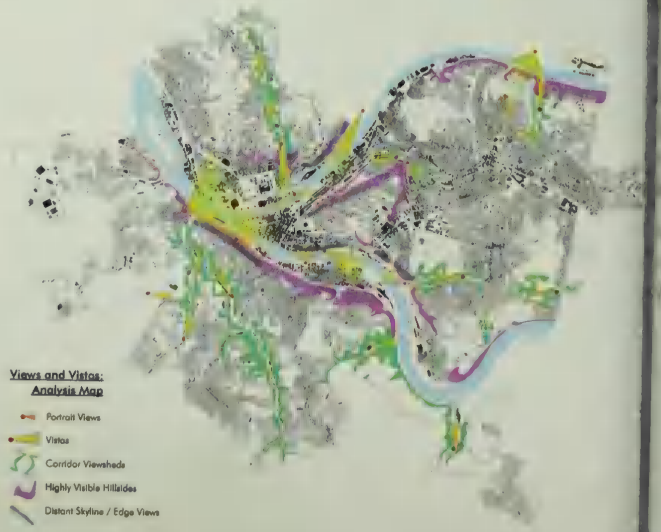
This urban design study makes recommendations for replacing zoning guidelines with specific regulations that maintain the character and identity of Pittsburgh's iconic hillsides. The architects clarified where hillside development should occur, striking a balance between buildings and green-space preservation. The project helped secure initiatives in the regional and state transportation plan for more rapid access to downtown. A pedestrian and bicycle greenway envisioned in the report provides added mobility to connect parks, schools, and other community centers.











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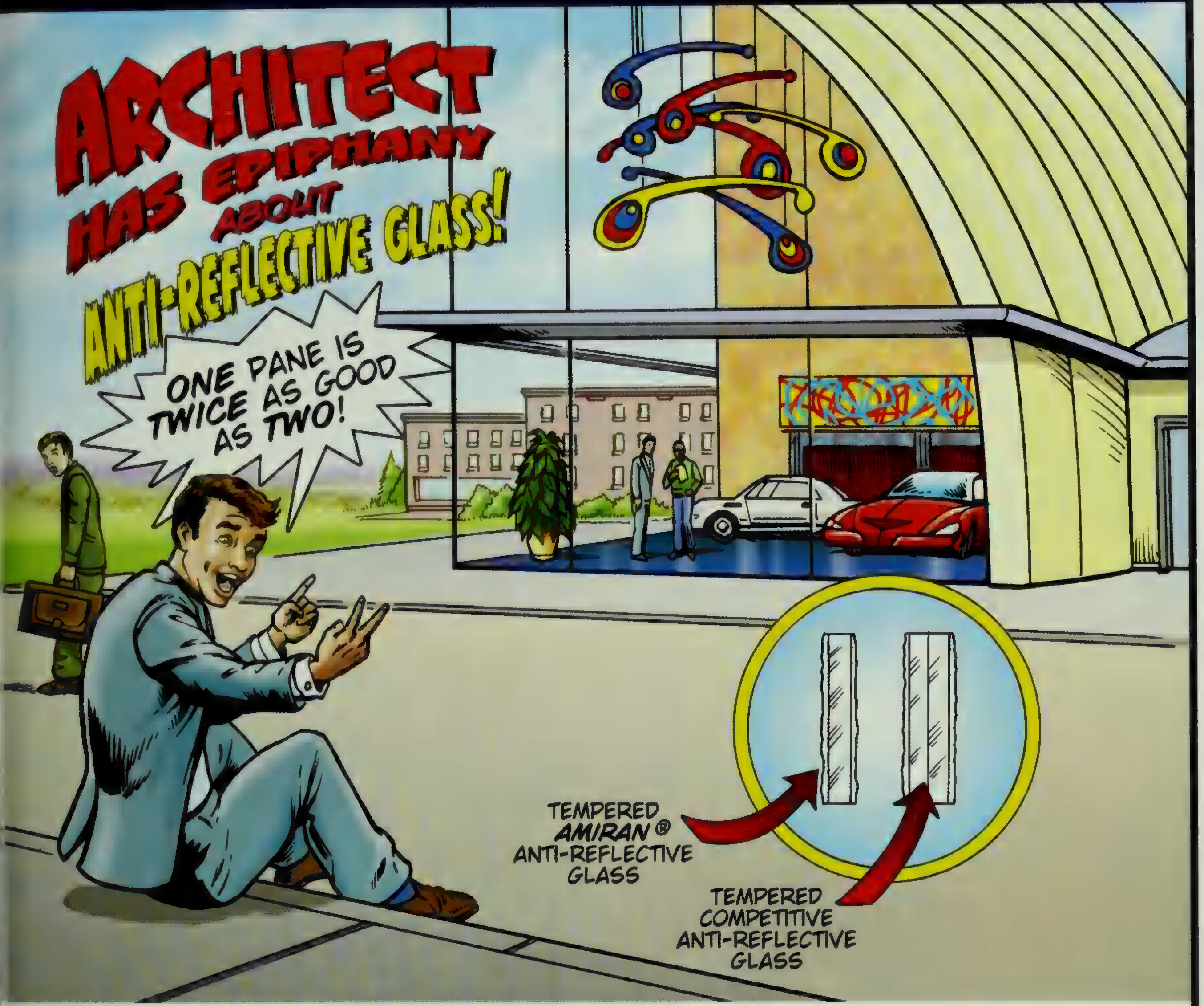
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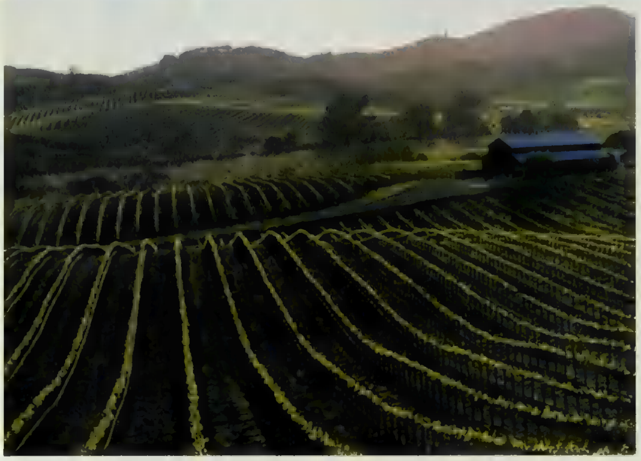
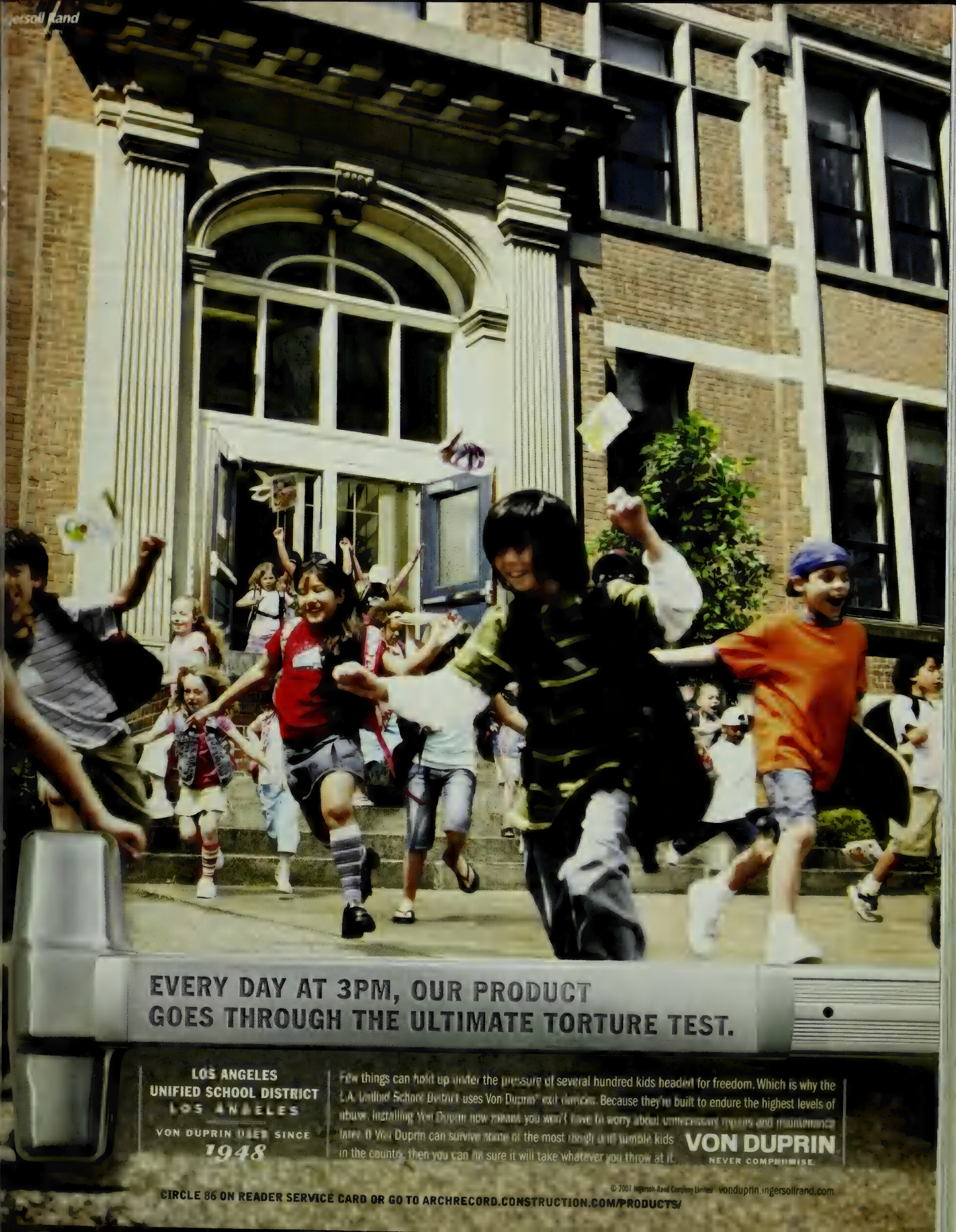


The Carneros Inn
Napa, Calif.
Architect: *William Rawn Associates; associate architects: Caspar Mol Architecture and Planning; Persinger Architects (formerly Persinger Hale Architects); RMW architecture & interiors; Les Girouard*

Located between the Sonoma and Napa wine regions in Northern California, this new, 27-acre inn and town center engages the broader community while serving as a "base camp" for visitors exploring the surrounding wine country. The plan calls for guest cottages and courtyard houses organized around a central open space and a pedestrian-oriented streetscape. The site culminates in the Hilltop, which includes a restaurant, reception building, and spa complex. The project uses geothermal heating and recycles storm water for on-site irrigation.



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25 YEAR AWARD

VIETNAM VETERANS MEMORIAL
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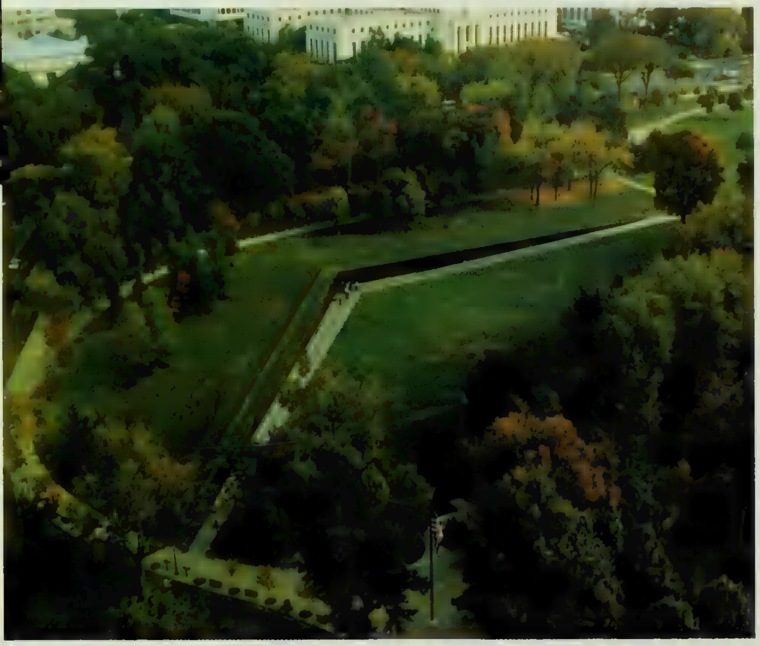


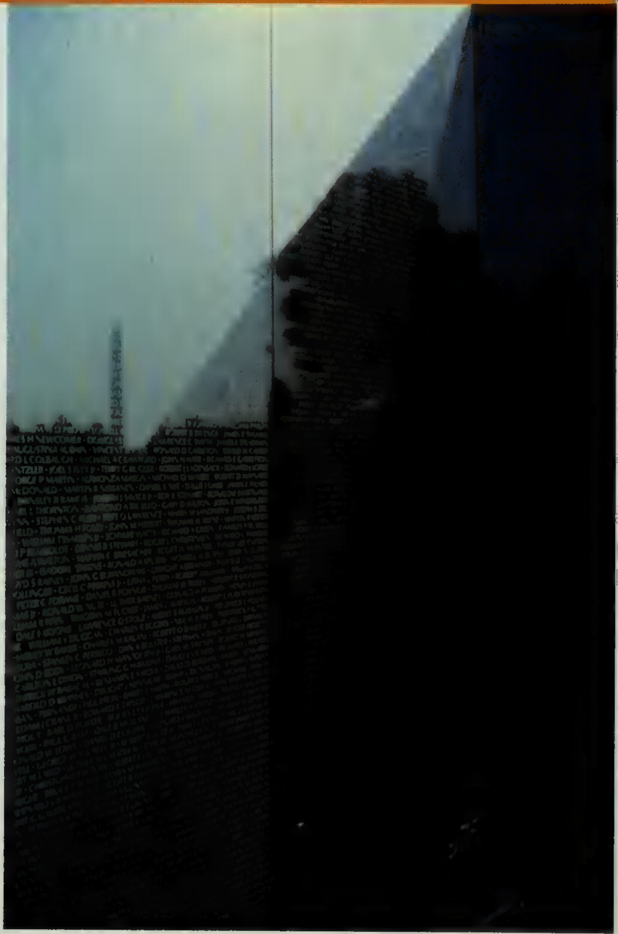
A controversial design honoring the lives lost in a controversial war, the Vietnam Veterans Memorial today stands as a nearly universally admired landmark. We still debate the war itself, but almost everyone agrees that Maya Lin's graceful, abstract monument touches people in a direct and profound way. While designing the project for a class during her senior year at Yale, Lin "always thought of the individual visiting it, the one-on-one experience," she recalled in a recent phone interview. She has been surprised, though, at how the memorial has become part of the nation's collective consciousness, a touchstone for people of widely different backgrounds and political views.

The project's early critics called it a scar, and in her 2000 book, *Boundaries*, Lin herself wrote, "I imagined taking a knife and cutting into the earth, opening it up, an initial violence and pain that in time would heal." But she now explains, "It is not a scar, but an interface, a thin boundary line, between two worlds." The monument's polished black granite surface, into which the names of 57,000 dead or missing Americans are engraved, reflects the images of the people who approach it. The living see themselves in the names of the fallen. "We can't enter that world. We have to turn around and go back to the light," she says.

Listing all the names of those lost in the war was required by

the rules of the design competition (which attracted more than 1,400 entries). One of Lin's seemingly odd, but ultimately key, decisions was to list the names not alphabetically, but in the order in which they died. This strategy requires visitors to consult a map to locate the name of a loved one, but places the fallen among those they died with—a powerful mnemonic for veterans who see he names of comrades together.

Today the memorial seems so ogical, such a natural fit with its setting. But it was a radical design n 1982, when most people thought of monuments as figurative sculpures or vertical (read phallic) markers. Lin's scheme changed our basic notion of what a memorial s, speaking a language everyone understands. *Clifford Pearson*



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FIRM AWARD

Leers Weinzapfel Associates takes the firm award, a first for women architects

While it might be sexist to call attention to the fact that this year's AIA Firm Award winner—Leers Weinzapfel Associates—will be the first woman-owned firm in history to win AIA's top firm award, there's no doubt it's timely. A number of architecture magazines recently featured stories on the role of women in architecture [see "Not Only Zaha," December 2006, RECORD, page 58]. Clearly, honoring a partnership like the Leers Weinzapfel duo is cause for celebration in a profession that seeks to loosen the knot on the tie of the old boys' network.

James Stewart Polshek, FAIA, wrote in his letter of recommendation in the award submission: "It would be nice to be gender blind, but our social construct is not yet reconfigured to allow that luxury. The fact is that for a woman-owned firm to succeed as spectacularly as Leers Weinzapfel did required persistence, diligence, and inventiveness."

Polshek's choice of words couldn't be more apt. *Diligence* is revealed in the team's dogged willingness over their 25-year history to undertake the design of many unsexy, utilitarian structures, which served as training grounds to refine their problem-solving and design acumen and weather the ups and downs of the construction market. As well, their *persistence* in working as Modernists in Boston's conservative, tradition-bound design culture has served them well, learning as they have to use historic buildings as inspiration for binding the past to the present in many of their designs. Lastly, *inventiveness* resides in their honesty about who they are; rather than making a case for a signature style, the firm tailors its design strategy to the challenges implicit in each project.

Andrea Leers, FAIA, and Jane Weinzapfel, FAIA, opened their Boston-based practice in 1982 in a converted warehouse in Boston's Fort Point Channel district, which served as their home for a quarter century. They've recently moved the 24-person firm to a light-filled, open studio space in Chinatown.

This is a partnership rooted in a long-term friendship. Even after a career's span of working as partners, Leers and Weinzapfel are not only best friends, but find their professional relationship continues to grow. From the outset, they have worked together, alternating from project to project, with one serving as the other's assistant principal, allowing clients to have a single point of contact, while encouraging a dynamic exchange of ideas between them. This collaborative pattern continues today with new partners, Joe Pryse, AIA, and Josiah Stevenson, AIA, who joined the firm in 1989 and 1986, respectively, and became principals in 1997. With four principals managing work, each project receives the close guidance of two partners from inception to completion.

PERSISTENCE, DILIGENCE, AND INVENTIVENESS HAVE DRIVEN THEIR SUCCESS.

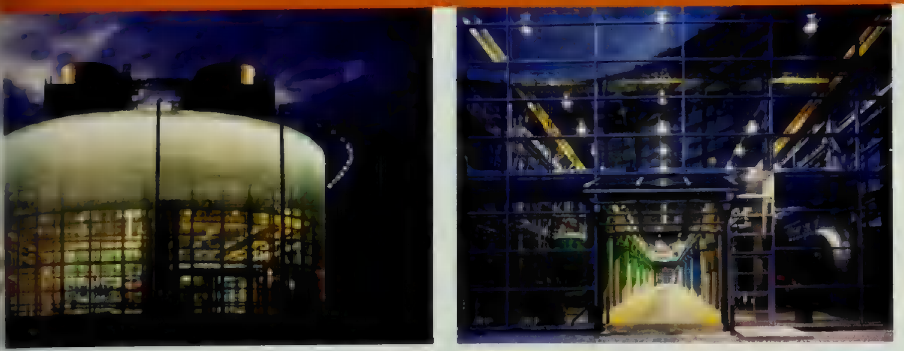
Sketches, computer renderings, and models of various scales reside in the studio pin-up areas and project meeting spaces of the firm. "Although we are trained to visualize space before it exists," says Weinzapfel, "we use many methods to describe the evolving spaces to ourselves and to each other in the studio." Together in the studio, they develop a shared understanding of the specific project, its spaces, enclosure, and site integration. This process pays off: "As our clients are exposed to the results of these studies and to our shared project vocabulary, they become adept at visualizing the spaces and the ideas behind the emerging designs. We are lucky to have clients who have become sophisticated architectural aficionados this way," Weinzapfel explains.

In the Leers Weinzapfel studio, design advances through office- and teamwide charrettes, where frequent brainstorming sessions and daily conversations gauge progress and ensure that results reflect a distillation of the experience of all members of the team. Once a year, the staff gathers to view and analyze the work of the past year; often an outside colleague joins the discussion. This process-oriented architecture encourages a shared vision of outcomes. As stated in the award entry materials: "The design team is dedicated to a 'signature process' rather than a 'signature design.' "

The jurors for the award cited the firm's resourcefulness; sensitivity to the client, site, and program; and its high standards of design and craft. Its careful handling of often complex and constrained urban sites also won praise. These qualities can be seen in many of the projects pictured on these pages.

"Their work lies at the intersection of architecture, urban design, and infrastructure," comments David B. Greenbaum, FAIA, chair of the AIA Committee on the Design Firm Award Jury Task Force, in his nomination letter. The firm's design for a chiller plant at the University of Pennsylvania's Gateway Complex in Philadelphia illustrates these qualities. The program combines a 70,000-square-foot, 500,000-ton watercooler with sports fields, locker rooms, press box, and seating, executed with stunning clarity, where mechanical activities are visible through a skin of perforated metal. The plant's curvaceous form reflects the contours of nearby rivers and roads and creates a new entry for the campus.

Leers Weinzapfel's projects reflect a blending of different eras and styles of design. The School of Architecture and Planning, located in MIT's main group of Neoclassical

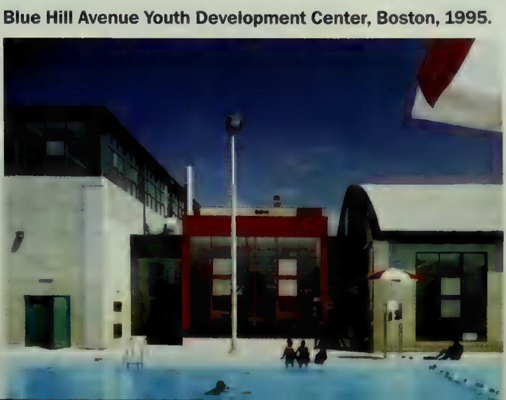


University of Pennsylvania Gateway Complex, Philadelphia, 2000.

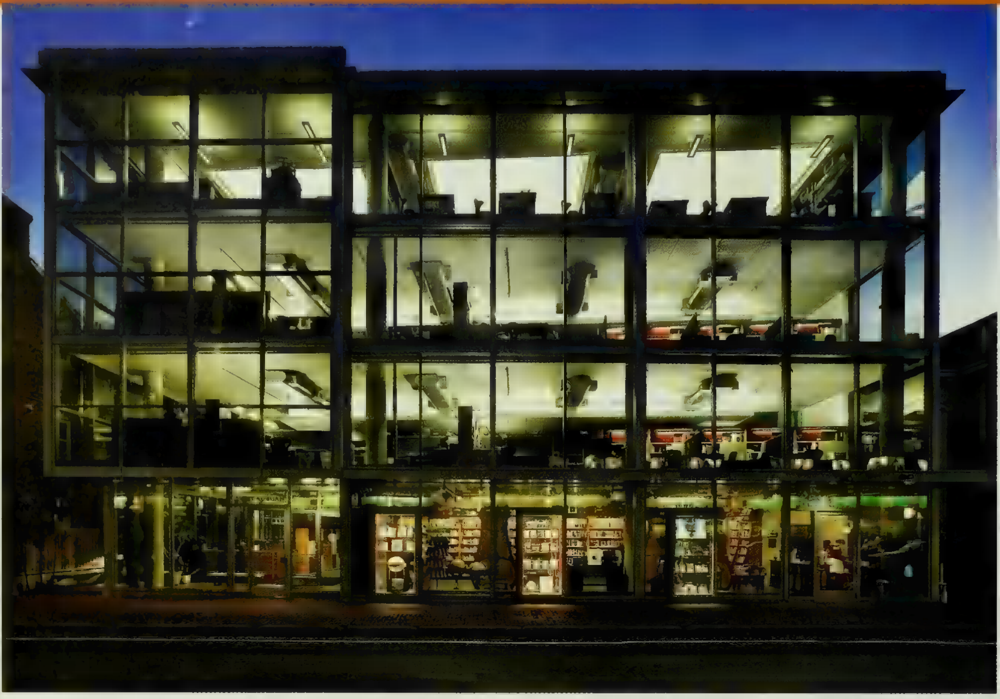
Courtroom at Fenton Judicial Center, Lawrence, Mass., 1998.

Princeton University Chilled Water Plant expansion, Princeton, N.J., 2005.

Blue Hill Avenue Youth Development Center, Boston, 1995.

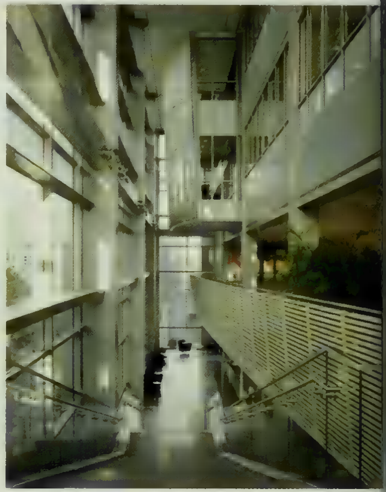


George R. White Gymnasium and Teen Center, South Boston, 1991.

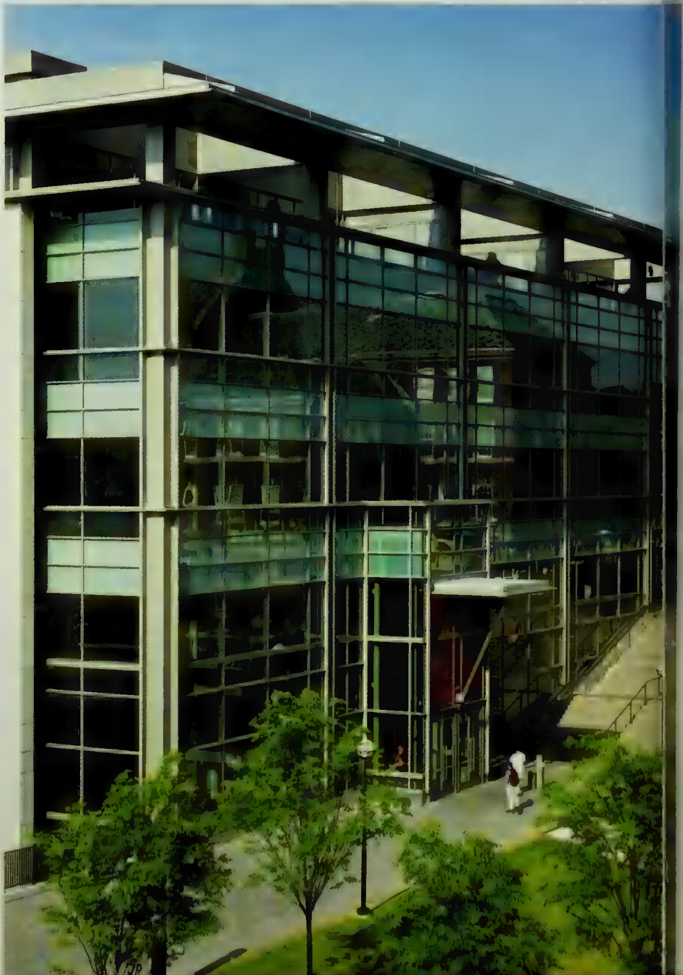


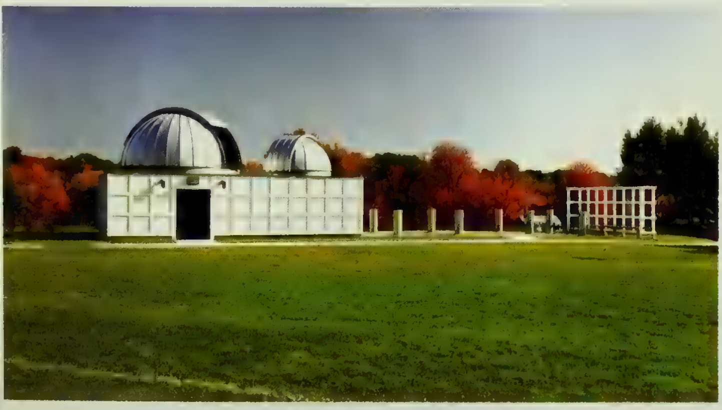
Harvard University Library Services Building, Cambridge, Mass., 2006.

University of Cincinnati University Pavilion, Cincinnati, 2004.



University of Cincinnati University Pavilion, Cincinnati, 2004.





Milton Academy Ayer Observatory, Milton, Mass., 1992.

Smith College Fitness Center, Northampton, Mass., 2004.

MIT School of Architecture and Planning, Cambridge, Mass., 1997–2004.

buildings in Cambridge, Massachusetts, was originally scattered in 12 different buildings. These were reunited into one Modern insertion on the attic floor encircling a historic rotunda, tying together the disparate program elements and, in the same gesture, creating a new heart of the architecture school.

Leers Weinzapfel's design style is typically spare, even austere, but the architects always find ways to celebrate materials and color. Consider the Youth Development Center, which provides a new recreation, social, and learning center in a densely populated and multiracial urban neighborhood of Boston. Reusing an abandoned ice rink, the architects created a playful new entry, where a series of colorful elements, including a yellow steel canopy, wrap around a slender red steel column topped with a beacon of light. This simple yet elegant solution creates a lively community space on a limited budget.

PROJECTS FEATURE A BLEND OF DIFFERENT ERAS AND STYLES OF DESIGN.

Leers takes inspiration from Japanese architecture, traveling annually to Japan to further her lifelong interest in its culture and architecture. "Over the years, I have absorbed the Japanese aesthetic of construction, appreciation of the sensual quality of materials, the subtlety of light, the value of proportion into my own way of seeing architecture," she comments.

This influence is evident in many of her projects, showing a Japanese penchant for synthesizing building and landscape. For example, the Judicial Center in Lawrence, Massachusetts, an important civic center at the heart of the city, uses its location on a canal to good advantage. In one gesture, a large porch serves as a covered passageway to the entrance, a public promenade along an adjacent park, and sunshade for the south-facing public hall.

Despite Leers Weinzapfel Associates' national reputation—the firm has won almost 50 national and regional design awards—its mostly institutional work is predominantly located in New England, with about 25 percent in the Boston area. But it is spreading its influence outward. "It is great to seek the opportunity to challenge ourselves with new client viewpoints, environments, climates, and building methods," Weinzapfel reflects. *Jane F. Kolleeny*

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American Institute of Architects

Winners and Jurors 2007

WINNERS

Architecture (page 130)

Meinel Optical Sciences Expansion: *Richärd + Bauer;* **University of California, Merced Central Plant:** *Skidmore, Owings & Merrill;* **Spencertown House:** *Thomas Phifer and Partners;* **Memorial to the Murdered Jews of Europe:** *Eisenman Architects;* **University of Michigan, Biomedical Science Research Building:** *Polshek Partnership Architects;* **School of Art and Art History, University of Iowa:** *Steven Holl Architects;* **Dr. Theodore T. Alexander, Jr. Science Center School:** *Morphosis;* **Canada's National Ballet School: Project Grand Jeté, Stage 1: The Jarvis Street Campus:** *Kuwabara Payne McKenna Blumberg Architects/Goldsmith Borgal & Company Limited;* **Palo Verde Library/Maryvale Community Center:** *Gould Evans Associates/Wendell Burnette Architects;* **Solar Umbrella House:** *Pugh + Scarpa;* **World Birding Center Headquarters:** *Lake/Flato Architects*

Interiors (page 138)

Louis Vuitton Landmark: *Peter Marino Architect; associate architect: dcmstudios (formerly Denton Corker Marshall, Hong Kong);* **Better Business Bureau Heartland Office:** *Randy Brown Architects;* **Bloomberg LP Headquarters:** *STUDIOS Architecture;* **Haworth Chicago Showroom:** *Perkins + Will/Eva Maddox Branded Environments;* **ImageNet, Carrollton:** *Elliott + Associates Architects;* **The Modern:** *Bentel & Bentel;* **Endeavor Talent Agency:** *NMDA; associate architect: Interior Architects;* **St. Mary of the Springs:** *Nagle Hartray Danker Kagan McKay Penney Architects;* **The Bay of San Francisco:** *Leddy Maytum Stacy Architects;* **Pierson and Davenport Colleges:** *Kieran Timberlake Associates;* **Top of the Rock at Rockefeller Center:** *Gabellini Sheppard Associates; associate architect: SLCE Architects*

Urban Design (page 149)

Historic Third Ward Riverwalk: *Engberg Anderson Design Partnership;* **Crown Properties:** *Ehrenkrantz Eckstut and Kuhn Architects;* **New York Stock Exchange Financial District Streetscapes and Security:** *Rogers Marvel Architects;* **Boston's Newest Smart Growth Corridor: A Collaborative Vision for the Fairmont/Indigo Line:** *Goody Clancy;* **A Balanced Vision Plan for the Trinity River Corridor:** *Chan Krieger Sieniewicz;* **Zoning, Urban Form, and Civic Identity: The Future of Pittsburgh's Hillsides:** *Perkins Eastman;* **The Carneros Inn:** *William Rawn Associates; associate architects: Caspar Mol Architecture and Planning; Persinger Architects (formerly Persinger Hale Architects); RMW architecture & interiors; Les Girouard*

25 Year Award (page 158)

Vietnam Veterans Memorial: *Maya Lin Studio*

Firm of the Year (page 160)

Leers Weinzapfel Associates

Gold Medal (page 166)

Edward Larrabee Barnes, FAIA

JURORS

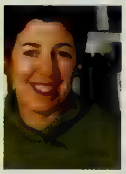
Architecture

Jury Chair

***Richard Logan**, AIA*

A principal at Gensler, Logan has been with the firm for 29 years and is currently based in its Atlanta office. His clients include the World Bank, HUD, General Motors, Arnold & Porter, and King & Spalding. Logan is a graduate of the University of Texas and the University of Pennsylvania.

***Elizabeth (Zibby) Ericson**, FAIA, Boston; **Krista** **Peters**, AIAS Representative, Howard University, Washington, D.C.; **Philip Freelon**, FAIA, Research Triangle Park; **Thomas W. Kundig**, FAIA, Seattle; **Nicole Ludacka**, Assoc. AIA, Omaha; **Henry Siegel**, FAIA, Emeryville, California; **Victor Trahan III**, FAIA, Baton Rouge, Louisiana; **Jane Werner**, Client Representative, Pittsburgh*



Interiors

Jury Chair

***Ann Beha**, FAIA*

Principal of Boston-based Ann Beha Architects, her projects include the renovation and expansion of the Portland Art Museum, the New Britain Museum of American Art, and renovations and expansion of the Taft Museum of Art. She is a graduate of Wellesley College and of MIT, and was later a Loeb Fellow at the Harvard Graduate School of Design.

***Hank Hildebrandt**, AIA, Cincinnati; **D.B. Kim**, White Plains, New York; **James Prendergast**, AIA, Chicago; **Ken Wilson**, AIA, Washington, D.C.*

Urban Design

Jury Chair

***J. Max Bond, Jr.**, FAIA*

In addition to his role as partner of New York City–based Davis Brody Bond, Bond has long been involved with community initiatives as well as teaching. Projects include the Birmingham Civil Rights Museum, the Martin Luther King, Jr. Center for Nonviolent Social Change, and laboratories at Harvard, Columbia, and Northwestern Universities. He is a graduate of Harvard College and the Harvard Graduate School of Design.

***Shalom S. Baranes**, FAIA, Washington, D.C.; **Jea** **Carroon**, AIA, Boston; **David Crossley**, Houston; **Richard (Dick) Farley**, FAIA, Denver; **Mark Graham**, AIA, Rancho Cucamonga, California*

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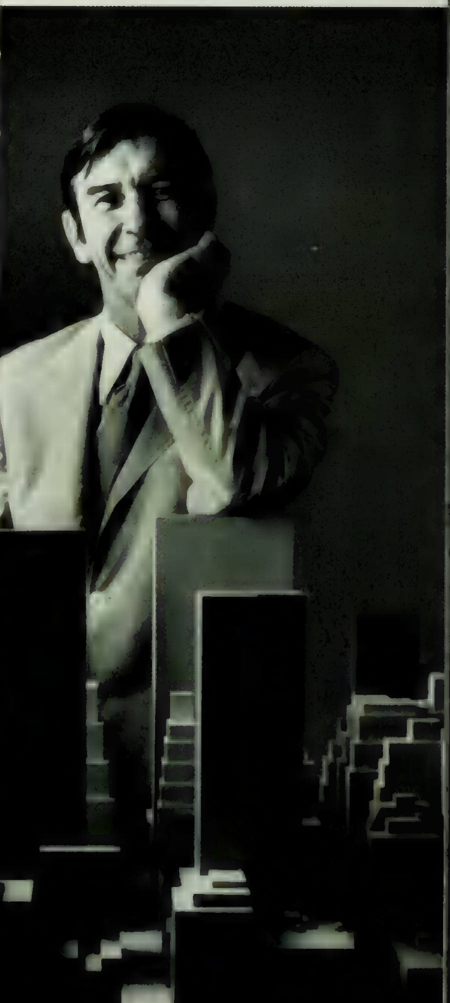
Ed Barnes et al. at Marcel Breuer's house in New Canaan, Connecticut, circa 1947 (left). Shown (left to right): unidentified man (possibly Breuer), Joan McVitty, Barnes, Alexander Calder, Connie Breuer, Mary Barnes. Ed Barnes, circa 1947, at Harvard (below left). Barnes in New York City, 1984 (below).



GOLD MEDAL: Edward Larrabee Barnes

Although the esteemed Modernist architect died in 2004, his legacy survives —for the most part intact

By Fred A. Bernstein

Edward Larrabee Barnes, FAIA, a seminal Modernist architect for nearly 50 years, died in 2004. But in 2007, Barnes is as big a presence as ever. In February, the AIA presented him with the 2007 Gold Medal, one of the few times the high honor has been bestowed posthumously. At its award ceremony, held in Washington, D.C., in February, Henry N. Cobb, FAIA, of Pei Cobb Freed, called him "arguably the most accomplished and influential" of a generation of architects trained by Gropius and Breuer at Harvard, "who went on to give Modernism a specifically American voice."

While Barnes's oeuvre, recipient of an AIA Firm Award in 1980 and a 25 Year Award in 1994, is getting a second look, some of his buildings are enjoying second incarnations—with the help of sensitive renovations. A number of architects are modifying his buildings—some of which are added on with extreme deference (such as Herzog & de Meuron's 2004 expansion of the 1971 Walker Art Center in Minneapolis), or by making surgical incisions (such as Michael Maltzan, FAIA's current reworking of he 1990 Armand Hammer Museum of Art and Cultural Center at UCLA). Given how well Barnes's body of work encapsulated the architecture of the late 20th century, what happens to it now may predict the fate of a generation of buildings.

In retrospect, Barnes appears to be a kind of Everyman—the architect in the gray flannel suit. And yet he was hardly content to blend nto the masonry. For one thing, he remained active in the profession even after retiring in 1994; living in Cambridge, Massachusetts, he attended crits at Harvard and participated in discussions outside the academy nearly until his death at 89. (Barnes urged Harry Parker III—with whom he had worked on the Dallas Art Museum, completed in 984—to choose Herzog & de Meuron to design the new de Young Museum in San Francisco, which opened in 2005. Barnes had met Herzog & de Meuron when they consulted him about the Walker.) Then, too, he was charming with clients and inspiring with employees, leaving a large cadre of loyalists. They include Toshiko Mori, FAIA, chair of the architecure department at Harvard's Graduate School of Design, who worked for Barnes in the 1970s. A tireless supporter of Barnes, Mori organized a symposium at the Museum of Modern Art (MoMA) in 2005, at which Jacques Herzog, Charles Gwathmey, FAIA (another Barnes office alum), and the critic Robert Campbell, FAIA, spoke of the importance of Barnes's work. And, along with more than 100 other former Barnes employees, Mori helped lobby for the Gold Medal. Few deceased architects could expect such an outpouring of support, which, to Mori, is merely about repaying a mentor who "always helped architects he believed in."

But it is Barnes's buildings, not the words spoken about them, that must stand the test of time. In that regard, it is ironic that his best buildings may be the ones seen by the fewest people. Many of the houses that Barnes designed early in his career—after a stint designing modular-home prototypes in Los Angeles right after World War II—still stand, but they are nearly invisible on their wooded lots. His Haystack Mountain School of Crafts on Deer Isle, Maine (1962), a series of shingled, shedlike buildings tumbling down a steep hill, is perfectly preserved, but, although it won the AIA 25 Year Award in 1994, it is so far off the beaten track that visitors are rare. Later, in 1974, Barnes designed the Heckscher House in Mount Desert Island, Maine, as a collection of small salt boxes forming a domestic village.

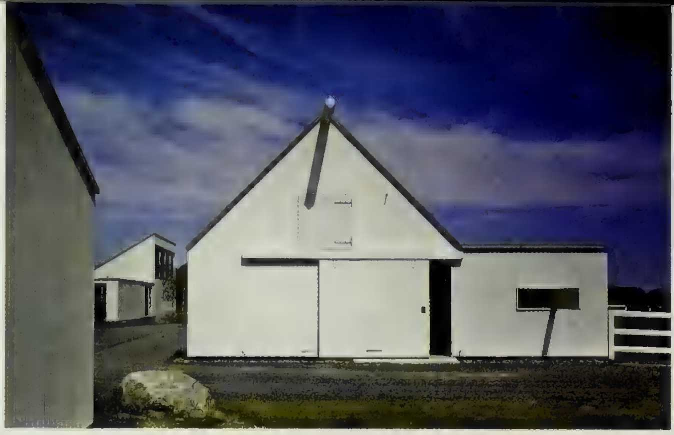
SOME OF BARNES'S BUILDINGS ARE ENJOYING SECOND INCARNATIONS—WITH THE HELP OF SENSITIVE RENOVATIONS.

The buildings people are most likely to see are Barnes's college campuses, including the State University of New York at Purchase, for which he began the master plan in 1967; his Manhattan office buildings, of which IBM, at 57th Street and Madison Avenue, is the hardest to avoid; and his museums, such as the Walker Art Center, the Hammer, the Dallas Art Museum, and the Sarah M. Scaife Gallery at Carnegie Institute in Pittsburgh(1974), the last of which Richard Gluckman, FAIA, has gently updated in recent years.

Also prominent is Barnes's Asia Society and Museum (1981), on Park Avenue in Manhattan, which was largely reconfigured by Voorsanger Architects in 2001. A nasty spat ensued, and Bart Voorsanger, FAIA, still complains that Barnes secretly tried to block the renovation. (Barnes loyalists say that he was appalled by Voorsanger's plan to rework nearly every aspect of the museum, leaving only its exterior intact.)

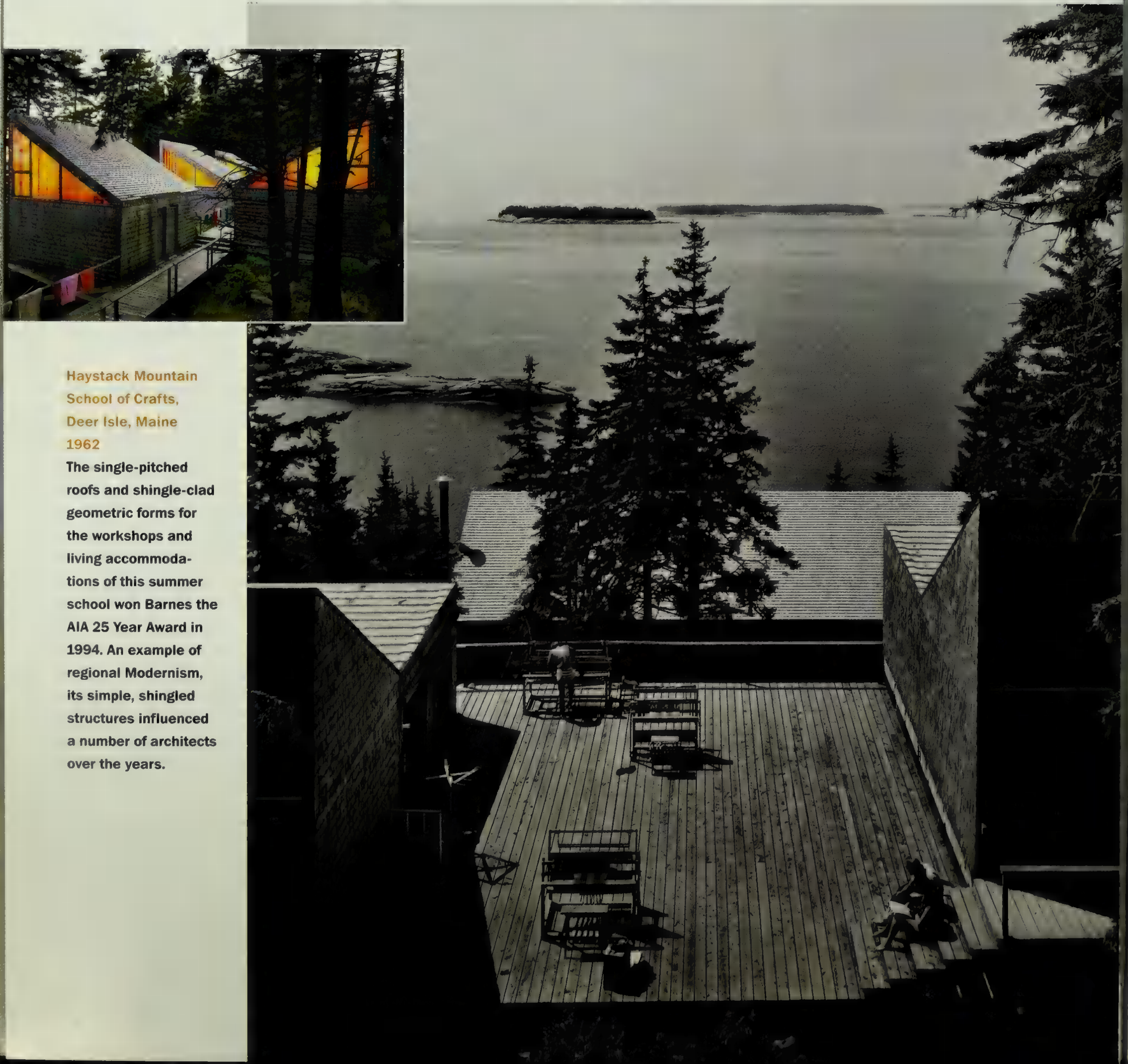
In the standard account of Barnes's career, the best buildings

Fred A. Bernstein, a regular contributor on architecture and design to The New ork Times, *spent a day touring Westchester County with Barnes in 2001.*



Cowles House, Wayzata, Minnesota 1962

The stark white Modern forms evoke the vernacular look of simple rural outbuildings. The a complex is grouped around a courtyard.



Haystack Mountain School of Crafts, Deer Isle, Maine 1962

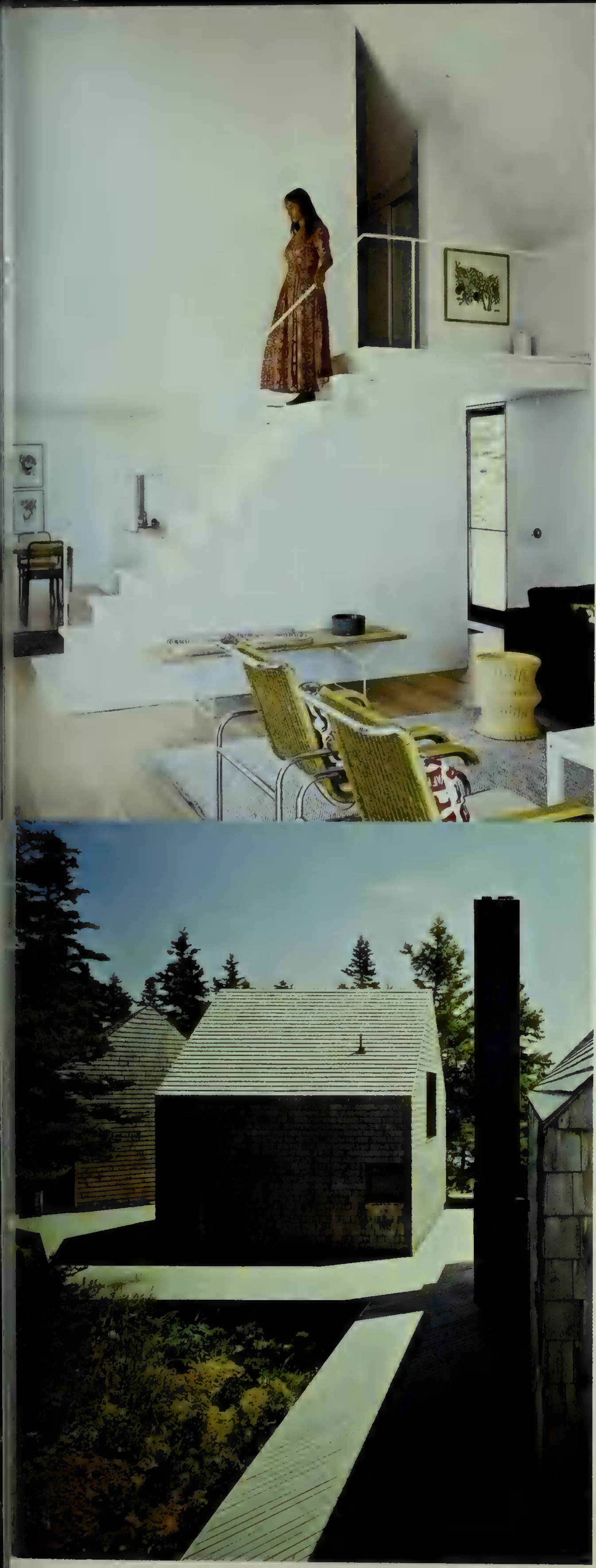
The single-pitched roofs and shingle-clad geometric forms for the workshops and living accommodations of this summer school won Barnes the AIA 25 Year Award in 1994. An example of regional Modernism, its simple, shingled structures influenced a number of architects over the years.

were the early ones. Born in Chicago in 1915 (his father, Cecil Barnes, was a lawyer; his mother, Margaret Ayer Barnes, a Pulitzer Prize–winning novelist), the young Barnes studied English at Harvard, then spent a year teaching at Milton Academy in Massachusetts. Visits to houses by Gropius and Breuer in nearby Lincoln persuaded Barnes to return to Harvard to study architecture—where he graduated in 1942. By 1949, he had established his own firm in Manhattan. With his wife, Mary, herself an architect, running the office, Barnes had his greatest successes with buildings small enough to fit in simple, crisp containers. Barnes's son, John, now the campus planner for the University of California at Santa Cruz, remembers his father working at the family's home in Mount Kisco, New York, on weekends with a T-square and parallel rule, creating pencil drawings that his buildings then closely emulated in their clean-lined simplicity. Among the noteworthy works to emerge from that period is the Cowles House in Wayzata, Minnesota, of 1962.

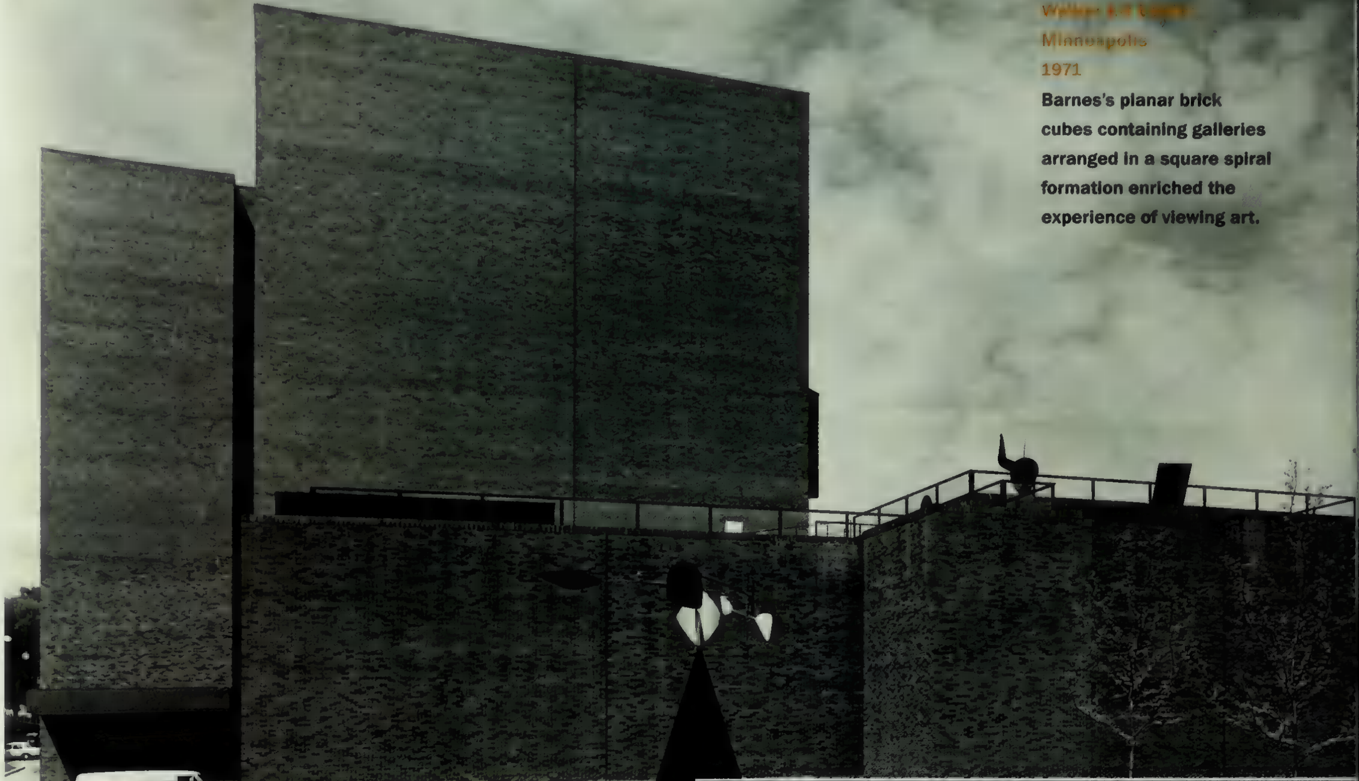
Then came a series of institutional buildings in which the same forms were enlarged just enough to accommodate the public, without losing their crystalline clarity. Their overriding characteristic, as Mori sees it, is that they adapted the tropes of the International Style to American tastes. "The proportions of his building, and the sequences, were much more generous than European prototypes," says Mori, adding, "The buildings have an American flavor—often a regional flavor based on farm architecture," without, she notes, being too literal or Postmodern.

But the down-home approach didn't survive the trip to Manhattan intact. Barnes's granite-faced IBM tower, despite its death-defying cantilever, is considered blandly unattractive. (Architect Christian de Portzamparc once described the faceted surface of his LVMH Tower, which opened in 1999 across 57th Street, as designed to ensure that no one had to look at a full-on reflection of Barnes's building.) Barnes's metal-clad 599 Lexington (1986) is a bit freer, but still forgettable. The Equitable Center (1986), a few blocks west on Seventh Avenue, is a half-hearted attempt at Postmodernism. Barnes seemed to hint at his reasons in a 2001 interview: "In the city, you have to respond to context, which is a complicated thing." He preferred creating pure forms that could stand alone in nature.

But the Manhattan skyscrapers—because they are both huge and relatively new—remain as Barnes designed them. By contrast, his earlier institutional buildings, many approaching the half-century mark, are being transformed. And each of the projects, involving an attempt to rethink Barnes's architecture, forces an examination of what that architecture meant. First came the addition to his Walker Art Center, where Jacques Herzog and Pierre de Meuron took their cues from the neatly stacked galleries of Barnes's original building. For the Swiss architects, the issue was relating to a building that seemed formally complete, since Barnes's scheme was based on the idea of ramps

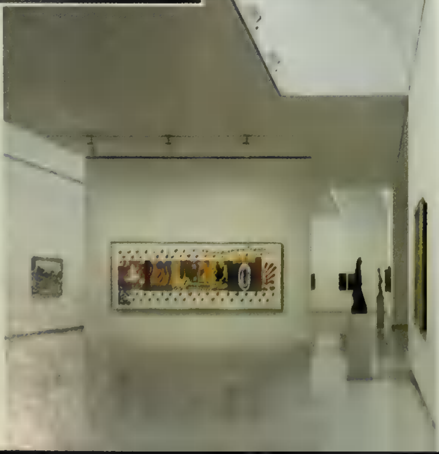


Heckscher House, Mount Desert Island, Maine
1974
Not far from Haystack Mountain School of Crafts, a family with grown children decided they needed a vacation house that afforded privacy to the inhabitants. The four-building compound expands on the Haystack school vocabulary, resembling a Maine fishing village in its scale and shingled roofs and siding.

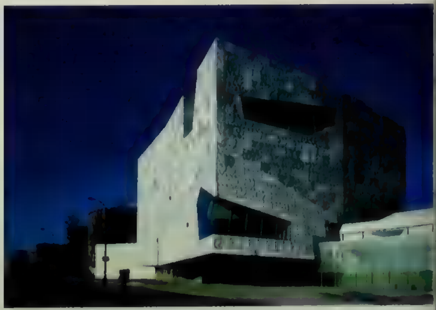


Walker Art Center,
Minneapolis
1971
Barnes's planar brick cubes containing galleries arranged in a square spiral formation enriched the experience of viewing art.

Sarah M. Scaife Gallery,
Carnegie Institute,
Pittsburgh
1974
An addition became famous for its glass-mullioned wall (left) and light scoops in the galleries (below).

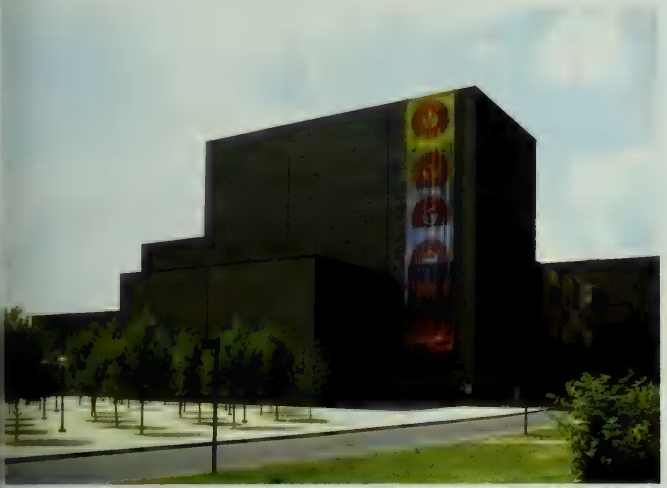


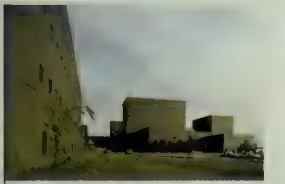
Walker Art Center
Expansion,
Minneapolis
2005
Herzog & de Meuron added a discrete (but not discreet) addition to Barnes's brick museum to provide more galleries, an auditorium, and a café/restaurant. The new structure orients the museum to the main thoroughfare and is clad in crumpled aluminum panels. Its deformed trapezoidal structure links to the orthogonal original building to the north.



Performing Arts Center,
Purchase College,
State University of New York,
Purchase, New York
1981

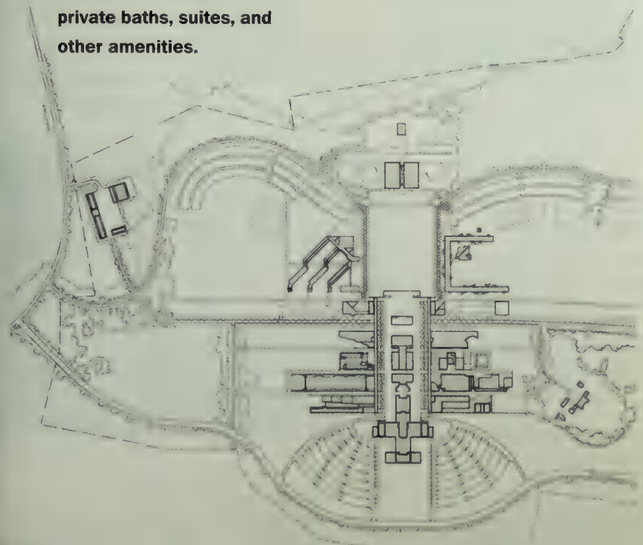
Barnes designed both the master plan and the centerpiece performance hall for the brown-brick campus.





Student dormitory,
Purchase College,
State University of New York,
Purchase, New York
2006

Einhorn Yaffee Prescott's dormitory has been officially named "Fort Awesome" by the students, who are fond of its private baths, suites, and other amenities.

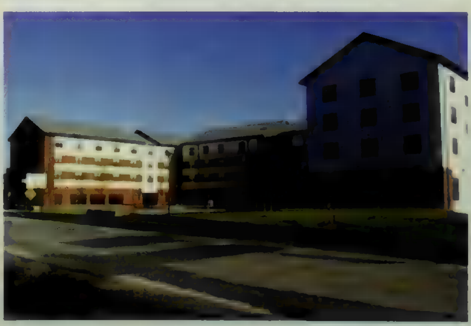


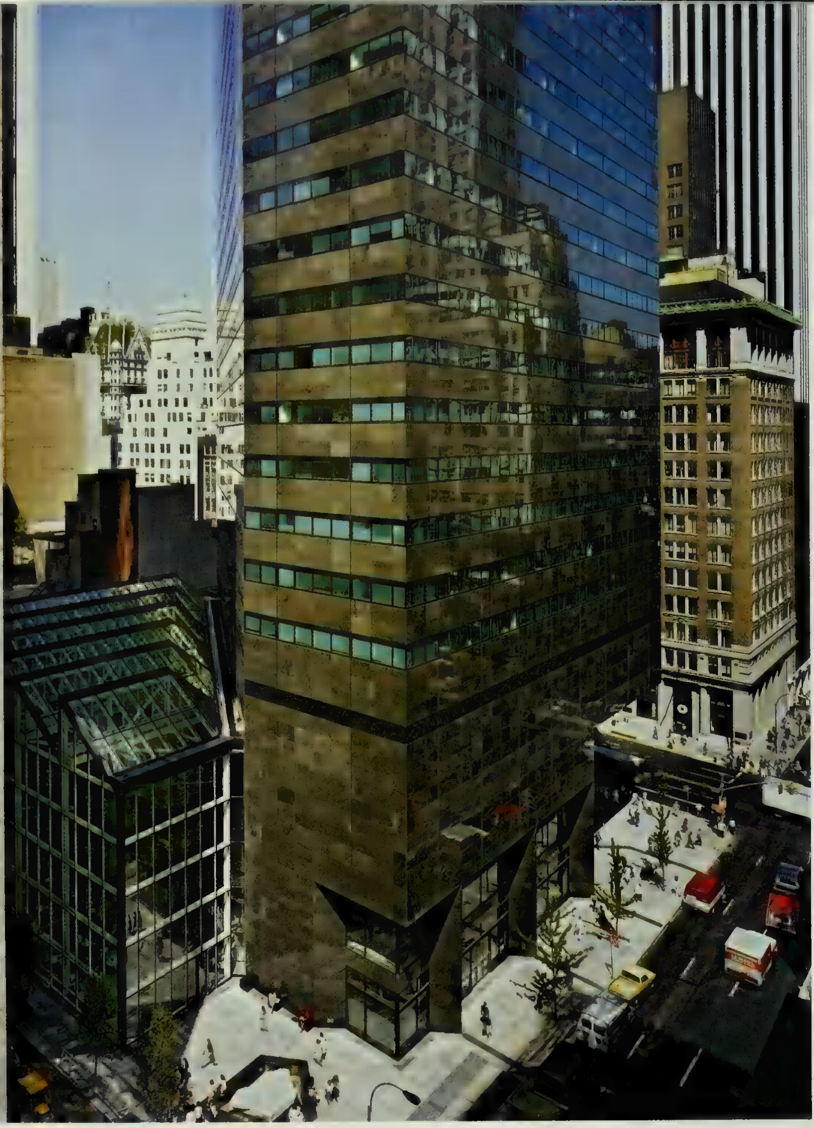
spiraling down the inside of a rectangular tower. Herzog & de Meuron hardly altered the existing structure, but instead added a second tower covered in an eccentrically perforated metal skin. A low circulation link slips behind the brick surface of Barnes's building. In Mori's view, the addition is an effort to "recontextualize the Walker compound by working on urban and landscape design plus the siting." In fact, the addition gives the museum two entrances, creating circulatory and conceptual redundancies. But Herzog & de Meuron did Barnes a big favor by creating a kind of fun-house version of his building. "It's a productive dialogue between the two types of architecture," says Mori, who adds, "Jacques and Pierre ended up making Ed's building look better."

Now the list of architects modifying Barnes buildings includes Architecture Research Office (ARO) of New York City, which has just completed an addition to his Packard Hall at Colorado College (1976), in Colorado Springs, and Michael Maltzan in Los Angeles, who, as noted, is reworking the Hammer Museum. They and the other architects reconfiguring Barnes's buildings for the 21st century say their goal is to burnish his legacy, not bury it. With the Packard Hall addition, ARO may have also made Barnes look better, though the firm's addition doesn't pull away from the existing building. "Our goal was always to make a new totality—not to have a little glass link to an addition," says ARO principal Adam Yarinsky, FAIA.

Barnes's Packard Hall consists of three articulated volumes—a 300-seat concert hall, a stack of studio spaces for art students, and a row of classrooms bordering a circulation spine—arranged around a courtyard. "The building has a very clear diagram," says Yarinsky, noting, "It's a modest building, with a timeless quality to it." When the school outgrew the building, ARO decided to add 10,000 square feet, containing music teaching spaces, rehearsal rooms, and an entry foyer for the concert hall—allowing the music department to surrender more of the original building to the visual artists. "We got hired," Yarinsky offers, "because the school thought we could work to decipher the underlying rationale of the building and then try to elaborate it." ARO covered the addition in preweathered zinc panels that would relate to the color of Barnes's stucco. The addition is playful in ways that the original buildings aren't: Inside, a wide stairway becomes a kind of stepped gathering place; outside, the zinc panels angle out as if to form permanent shutters. But the new vitality seems to represent the elaboration, not the negation, of Barnes's vision.

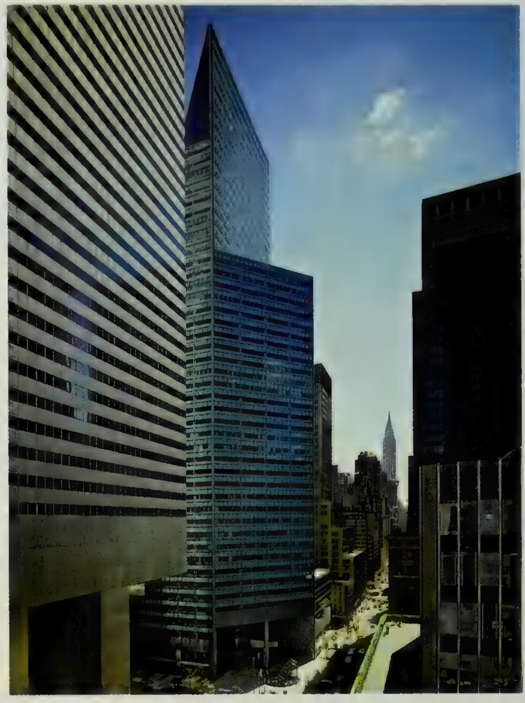
Things are very different in California, where Michael Maltzan, working with graphic designer Bruce Mau and landscape designer Petra Blaise—neither one a shrinking violet—has proposed redesigning the Hammer Museum, which was built by the oil magnate Armand Hammer to house his personal collection and is now affiliated with UCLA. (Maltzan's new theater within the museum was completed this year;





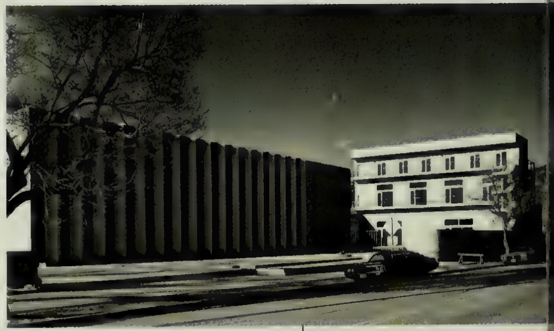
590 Madison (formerly IBM),
New York City
1983

The notheast corner of the granite-clad tower is carved out at the base, and offices are cantilevered over the sidewalk.



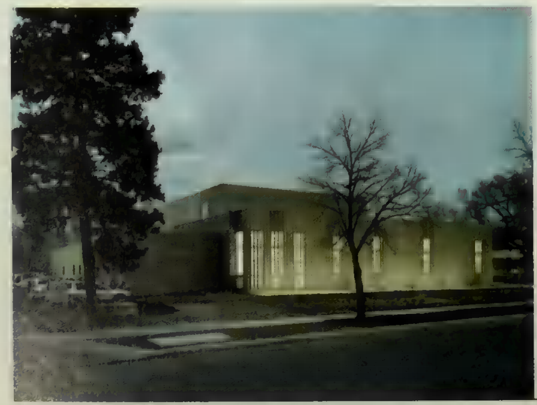
599 Lexington Avenue,
New York City
1986

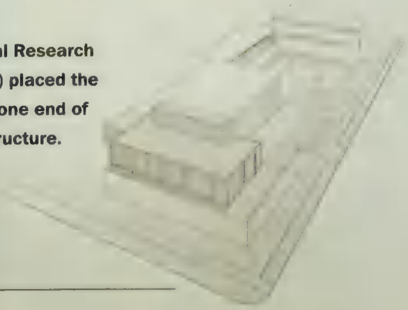
Barnes sliced off the corner of the glass and aluminum tower at the base to create a plaza.



Packard Hall,
Colorado College, Colorad
Springs, Colorado
1976

The music and art building includes a concert hall (foreground), linked to a studio tower by a skylit gallery (not shown).





Packard Hall Addition,
Colorado College,
Colorado Springs,
Colorado
2005

Architectural Research Office (ARO) placed the addition at one end of Barnes's structure.

fund-raising is under way for future phases.) Barnes's building, a stunted box wrapped in gray-and-white-striped marble, is blank and impervious; inside, a confusing circulation system featuring three separate entries upstages the central courtyard that should have been the building's focus.

The planned renovation alters the museum's exterior, with glass-fronted entries eroding Barnes's stone facing and large, translucent panels providing bold signage at the corners of the building. In the renderings Maltzan presented at the 2005 MoMA symposium, it was hard to see Barnes's architecture as anything but a foil, with Maltzan cutting away like Gordon Matta-Clark chainsawing through an abandoned tenement. But, according to Maltzan, he is working to preserve the central element of Barnes's design, the courtyard, and leaves what he calls Barnes's "very successful galleries" untouched. "Barnes really encouraged us to take it on," says Maltzan. "He was a complete Modernist, somebody who started with the idea that a building springs from function, and when the function changes, the building has to change as well. It was amazing."

Something at least as radical—but not nearly as thoughtful—is happening in Purchase, New York. In the late 1960s, Barnes was the master planner for the State University of New York at Purchase, in rural Westchester County. His scheme involved locating a dozen buildings around a gigantic, raised plaza, set in the center of the college's 500 bucolic acres. At the west end of the plaza is the college's tallest building—the performing arts center (1981), designed by Barnes himself. Barnes left the east end of the plaza open to views of the countryside, making the campus a quadrangle in which nature provided the fourth wall.

Not everyone liked the campus's endless expanses of brown brick. "It's an exercise in sensory deprivation," said John Morris Dixon, FAIA, the editor in chief of *Progressive Architecture* from 1972 to 1996.

But Barnes made huge tree-filled allées part of his scheme, and rather than design the entire campus himself, he enlisted other architects, notably Philip Johnson and John Burgee; Gwathmey Siegel; Paul Rudolph, FAIA; Gunnar Birkerts, FAIA; and The Architects Collaborative (TAC). Some of their buildings—including Johnson/Burgee's terrific Neuberger Museum (1974)—have aged with grace.

The biggest change to Barnes's campus is from without: The hillsides to the east are now covered with town-house-style condos, ticky-tacky despite their hefty price tags. That means that the entire thrust of Barnes's plan—in which the arts and nature are in balance—has been sacrificed to sprawl. Other changes are coming from within.

The college's president, Thomas J. Schwarz, has called Barnes's architecture "overbearing," and the college has spent $3 million in state money to overhaul the performing arts center, adding carpeting over the stone floor and painting its interiors bright colors. At the other end of the quadrangle, a new student service building (2006), by the New York firm of Kevin Hom + Andrew Goldman Architects, features exteriors of bright red, blue, and green. Even more surprising, a gabled, farm-style dormitory by the Boston office of Einhorn Yaffee Prescott Architecture has risen just south of the quadrangle; it has been depicted by administrators as an attempt to bring "new urbanism" to the campus.

In fact, the new building, a kind of oversize barn in multicolored brick, isn't the least bit urban, or even urbane. But it does call attention to itself. The same cannot be said of Barnes's buildings, which managed to be sophisticated without ever devolving into self-importance.

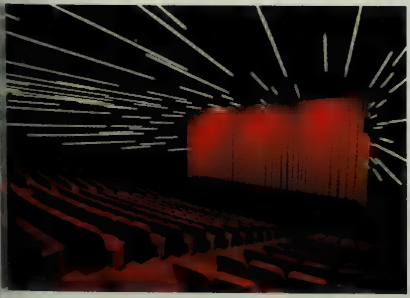
One of the greatest strengths of Barnes's architecture is its self-restraint. His buildings are geometrically precise, perfectly sited, and devoid of the flourishes that make some buildings look old before their time. They are not idiosyncratic or show-offy. That may be precisely what has enabled them to endure the vicissitudes of fashion and reemerge for a new era, altered but still vital. ■

Dallas Museum of Art,
Dallas
1983

The museum, clad in limestone, is designed to avoid bulky masses (above). Inside, visitors encounter a large, vaulted gallery (left).

rmand Hammer
luseum of Art and
ultural Center,
os Angeles
990

ne gray-and-white arble museum is apezoidal in shape.



Auditorium, Armand Hammer Museum of Art and Cultural Center,
Los Angeles
2007

Michaal Maltzan is currently renovating the museum; he just finished the auditorium.

Venetian Hotel Photo courtesy of Dryvit Systems, Inc

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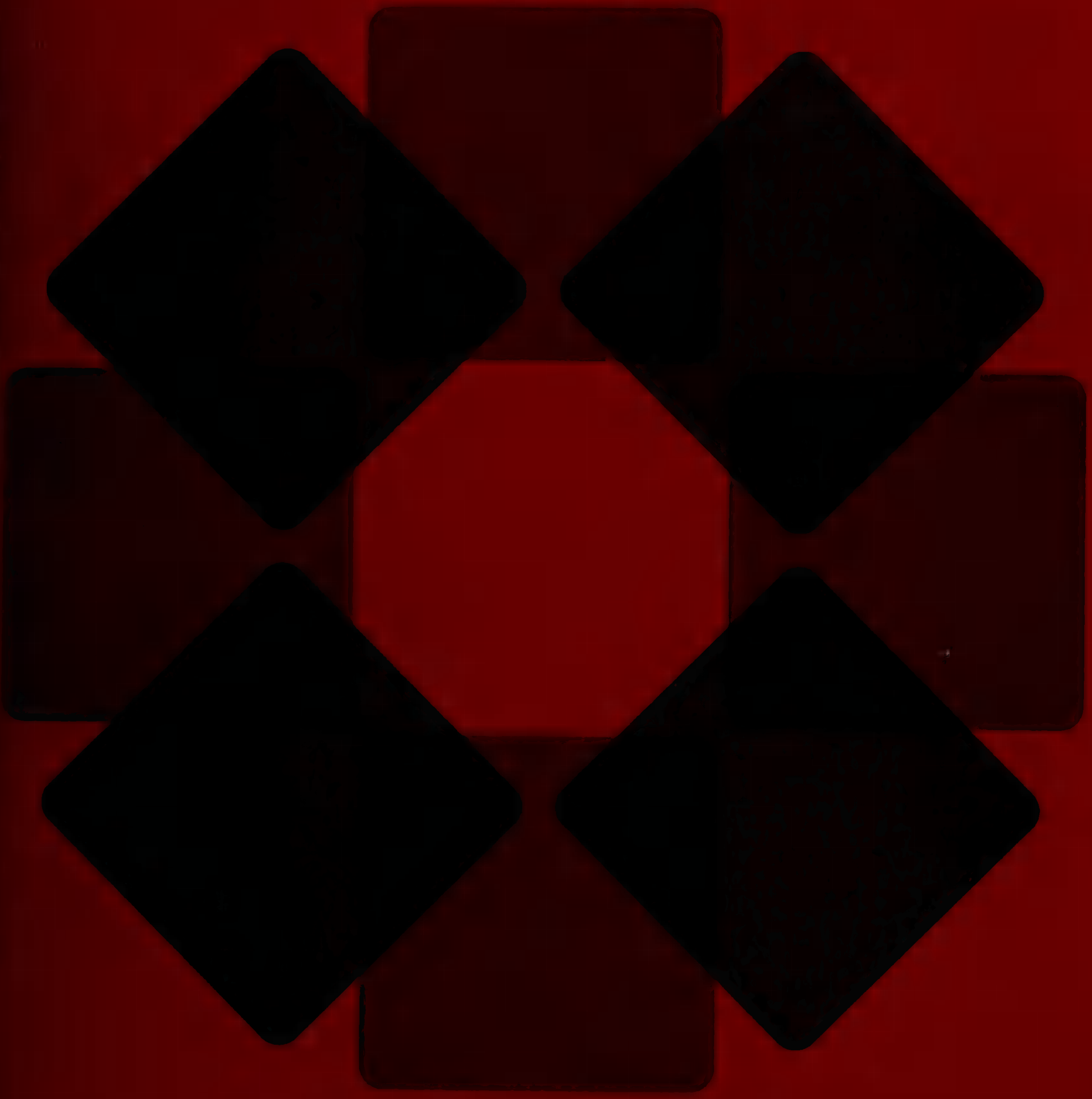

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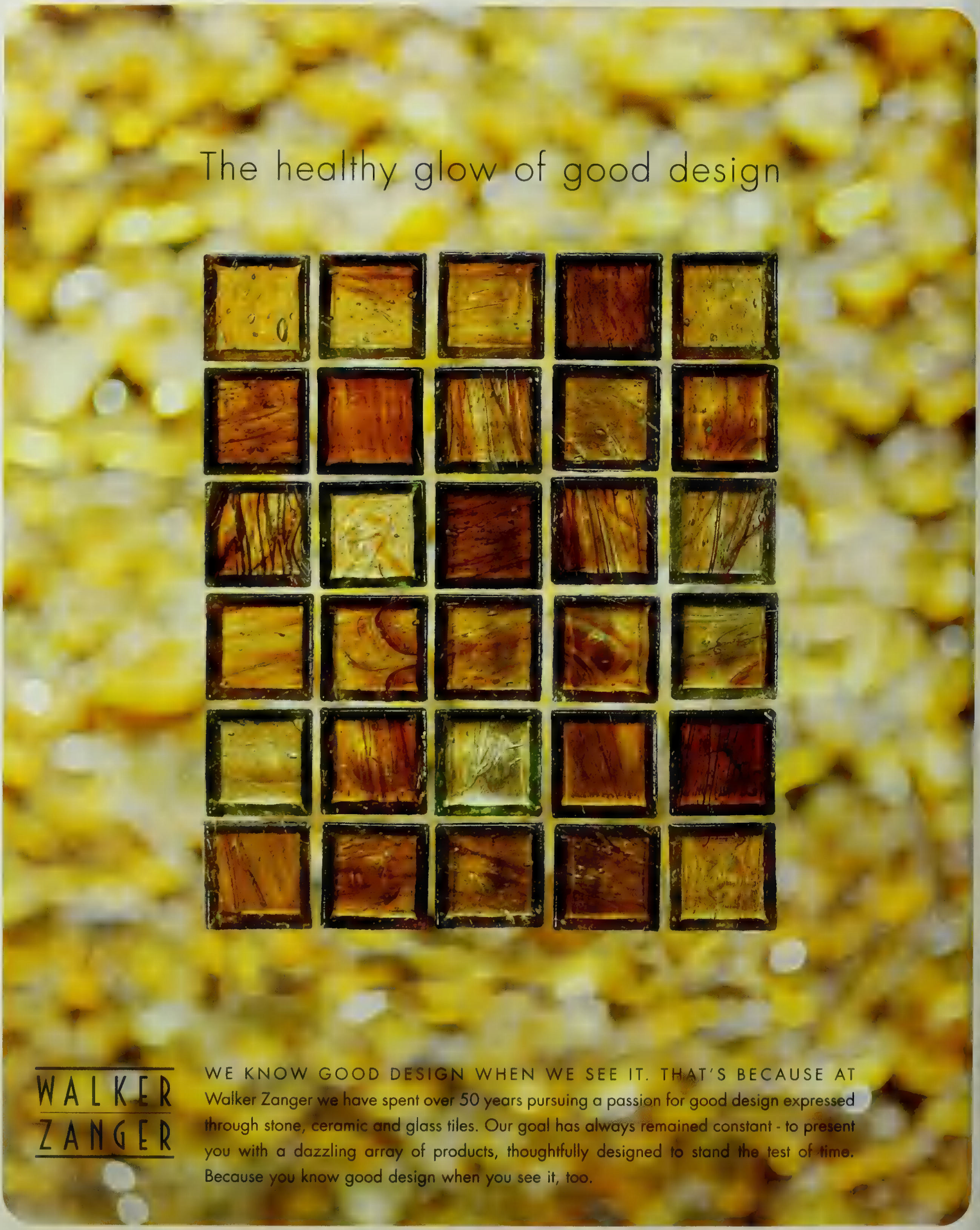

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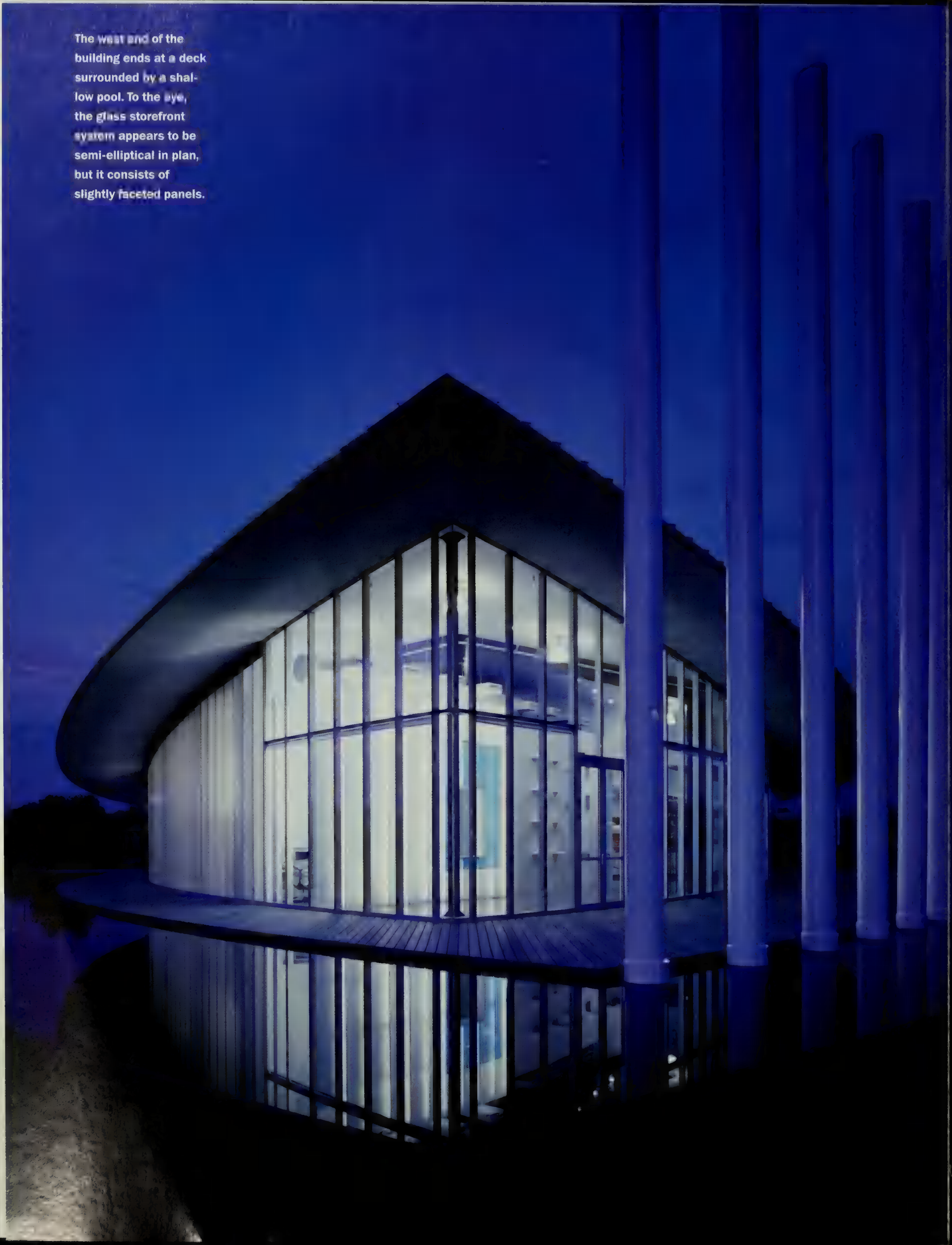
The west end of the building ends at a deck surrounded by a shallow pool. To the eye, the glass storefront system appears to be semi-elliptical in plan, but it consists of slightly faceted panels.



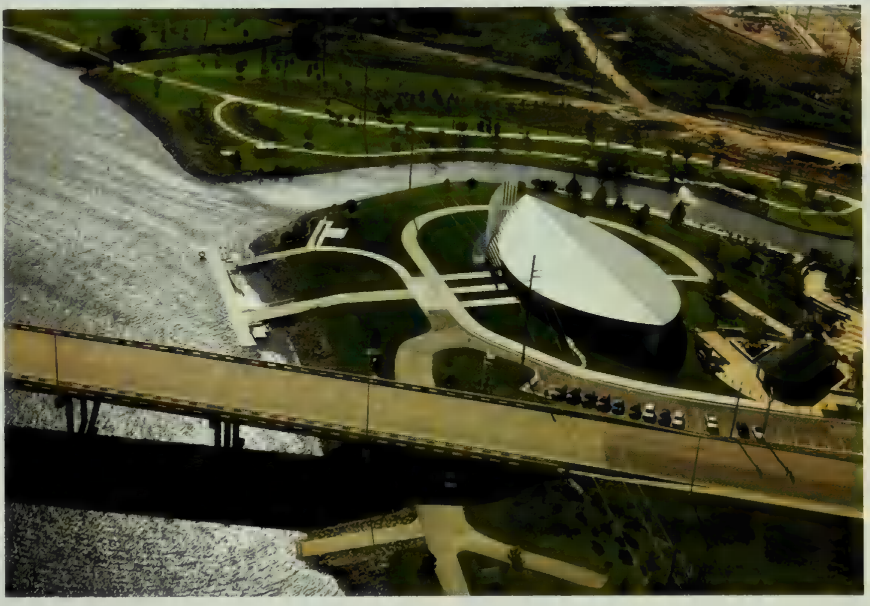
Rand **Elliott** adds a delicate shell to the banks of a reinvented river for the new **CHESAPEAKE BOATHOUSE** in a renewed downtown Oklahoma City

By Russell Fortmeyer

Rand Elliott, FAIA, drives his white Porsche 911 around Oklahoma City, showing you his major projects, shifting gears, and sweeping through the sprawling landscape so quickly, authoritatively, you begin to understand how important the new Chesapeake Boathouse is to the career of this consummate Oklahoma architect.

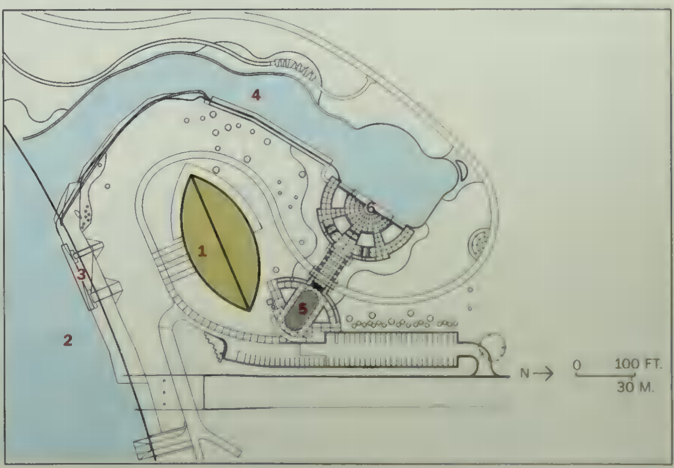
But you first have to ask yourself: What is a boathouse doing in O-K City and, for that matter, who builds boathouses in this day and age? It sounds like some kind of country club folly, a euphemism for a garden shed, or an aluminum-sided marina on the banks of a red dirt reservoir, but rather it turns out to be exactly what you wouldn't expect in Oklahoma: one of the best facilities for competitive sculling in the country. The nonprofit Oklahoma City Boathouse Foundation asked Elliott to design the building on the banks of the Oklahoma River to accommodate an expanding program—the Oklahoma Association for Rowing counts 325 members and growing, while three local universities have implemented programs. The 14,578-square-foot boathouse provides these athletes and hobbyists with meeting space, offices, fitness facilities, and storage for nearly 100 racing shells—sleek, carbon-fiber-reinforced plastic boats in a variety of colors and lengths.

Like most athletes in America, rowers are obsessed with speed. Custom manufacturers optimize the shells like those stored at the Chesapeake Boathouse to within fractions of an inch. An elite single-person racing shell may measure 30 feet long, less than 24 inches wide, and weigh only 30 pounds. They slice through the water so easily, you forget the rower must maintain precise balance to keep the silvery thread of a vehicle from



The boathouse's site (above) lies in Regatta Park on the banks of the Oklahoma River, just west of the Lincoln Avenue Bridge.

1. *Boathouse*
2. *Oklahoma River*
3. *Dock*
4. *Canal*
5. *Water taxi pavilion*
6. *Water taxi dock*



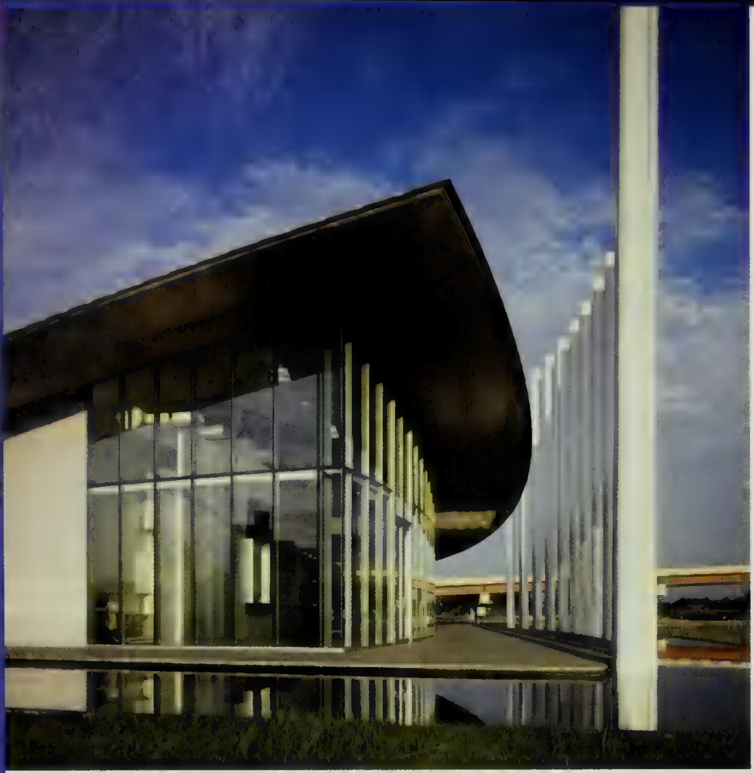
Project: *Chesapeake Boathouse, Oklahoma City, Oklahoma*

Architect: *Elliott + Associates Architects—Rand Elliott, FAIA, Brian Fitzsimmons, AIA, Miho Kolliopoulos, AIA, Joseph Williams, Assoc. AIA*

Engineers: *Grossman & Keith Engineering (civil); KFC Engineering (structural); PSA Consulting Engineers (m/e/p)*

Consultants: *Elliott + Associates Architects (landscape, lighting); Smith Lighting*

Contractors: *Smith & Pickel Construction (general)*



Although the boat-house was built using a prefabricated metal system, the building's starkly symmetrical form and its restraine material use suggest

capsizing. Elliott paid close attention to these sorts of details when he began design. Throughout his more than 30 years of practice in the "City," as everyone in Oklahoma calls it, he has consistently said he begins a project by looking at the culture prevailing at its inception, while also attempting a reading of the intangible qualities conveyed by the site's physical context. Many architects say this, but not many architects are Rand Elliott.

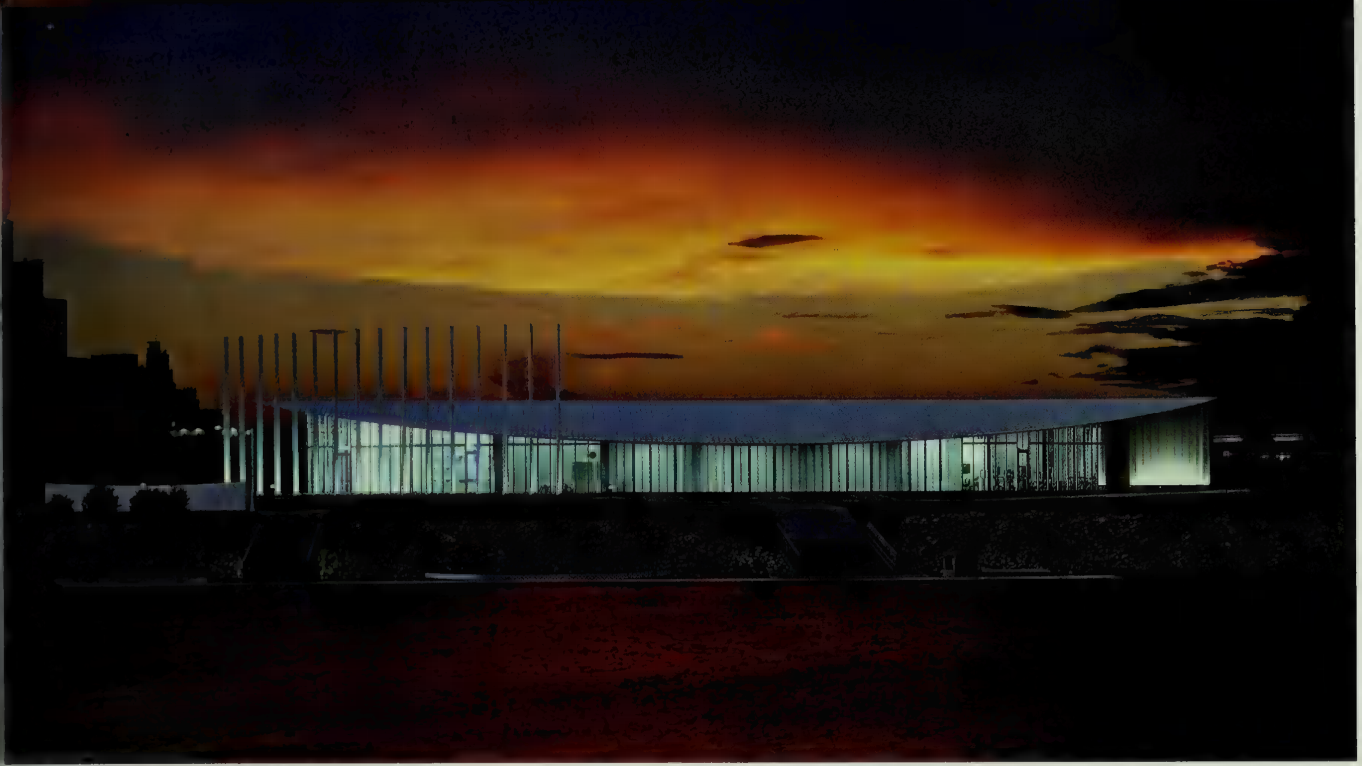
The Chesapeake Boathouse has little in common with the traditions called to mind by Philadelphia's Schuylkill River rowers forever in midstroke in a Thomas Eakins canvas. Rather, Elliott addresses the tricky architectural issue of origin head-on: through a deft evocation of our modern fascination with sport and speed, mingled with Oklahoma City's very real, shared civic desire for reinvention, in lock-step with the city's larger ambitions to shed its Dust Bowl image. He sought to reinvent the typology of the boathouse, capsizing the racing shell and morphing its formal qualities onto an architectural project.

TO DESIGN AN ICON FOR YOUR CITY SURELY REMAINS EVERY ARCHITECT'S DREAM SINCE GUSTAVE EIFFEL'S TIME.

Elliott's boathouse couldn't be anything other than what it is, a statement that sounds like quackery because it very much means to: This building boldly testifies that the infamous "duck" in Robert Venturi, Denise Scott Brown, and Steven Izenour's *Learning from Las Vegas* (1972) is alive and well and living in Oklahoma. "I'm not a rower, so I had no preconceptions," Elliott says. "I looked for a basis—the history and motivatio for the project." The architect, a native Oklahoman, says he wanted t embrace an architecture that would startle the locals in its departure fro the city's status quo. And while Oklahoma City may never quite qualify as great river town like Philadelphia, Elliott's boathouse makes a spirited cas Its sinuous form—elliptical in plan, topped with a sleek standing-sea metal roof—achieves the not-unimportant task of providing an icon fo the river. It functions on two levels of iconicity: embodying what it purpor to be (a house for boats that looks like a boat) and representing the city pride in its restored river (the icon as symbol). To design an icon for you city surely remains every architect's dream since the time of Gustave Eiffe

Although on paper the specifications for the boathouse ind cate a conventionally steel-framed building with stained concrete floor Elliott has a knack for putting his budget constraints—a mere $3.5 mi lion—to work. He's a pragmatist with a Pop sensibility, calling to min Venturi's urge in his seminal 1966 book, *Complexity and Contradiction i Architecture,* to give "uncommon meaning to common elements b changing their context or increasing their scale."

Attempting the strategy of architectural icon-making qualifies a precarious business; in lesser hands, it could have been kitsch or Disney esque frivolity. Sixteen 40-foot-high steel tubes mounted vertically alon the southwestern edge of the boathouse's composite-wood-and-plast exterior deck stand in as sculls, or oars. A shallow pool surrounds th deck along the building's western half. Other rowing details emerge: A exterior column on the east appears as a rudder; the ridge of the roo



more refined level of
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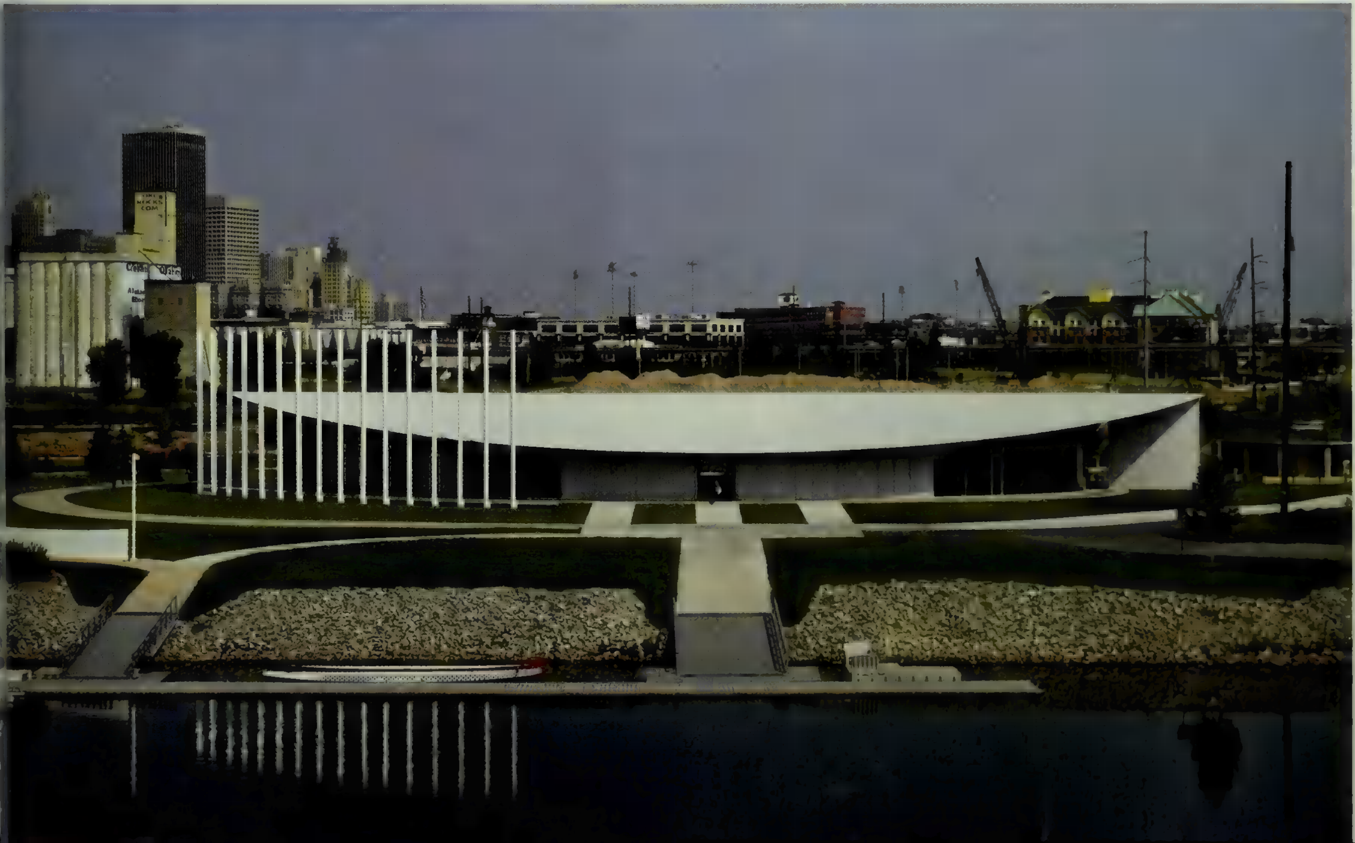
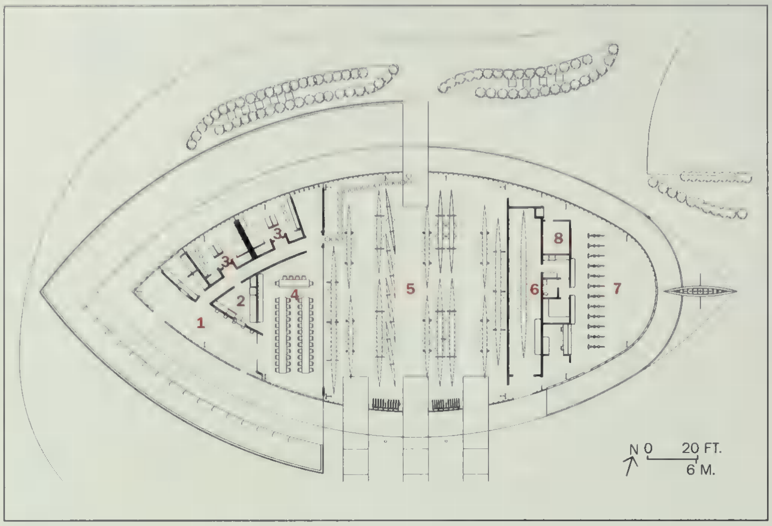
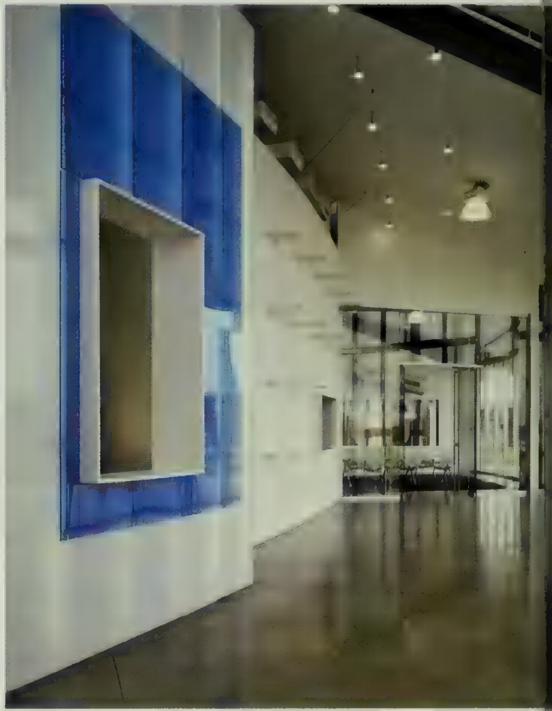




1. *Lobby*
2. *Kitchen*
3. *Locker room*
4. *Multipurpose room*
5. *Boat storage*
6. *Boat repair shop*
7. *Fitness club*
8. *Electrical and mechanical room*



The lobby (above) includes a wall of glass shelves for regatta trophies. The steel structure was left in its base factory color of gray—a cost-cutting step, says the architect.

recalls the skeg, or short fin, along the bottom of a shell; and from the interior, the 1-inch insulated-glass storefront system falls across the distance like oars dipping into water.

The boathouse's overall symmetrical composition recognizes the need for precise balance in the sport, but this is less apparent than the effect of lightness Elliott achieved with the thin roof surface that seems barely tethered to the walls of glass and polycarbonate underneath. An interior detail, where the walls and ceiling planes stop just short of the structural elements, heightens the effect. An architect can draw balance and symmetry on paper, but creating the appearance of lightness in built form, whether in a racing shell or a boathouse, takes practice.

THE BOATHOUSE'S OVERALL SYMMETRICAL COMPOSITION RECOGNIZES THE NEED FOR PRECISE BALANCE IN THE SPORT.

The form may begin with a boat, but the abstracted Minimalism of its design—its reduction to an unadorned state of materials and the subjection of the icon to the program of a boathouse—places the building in the category of significant architecture.

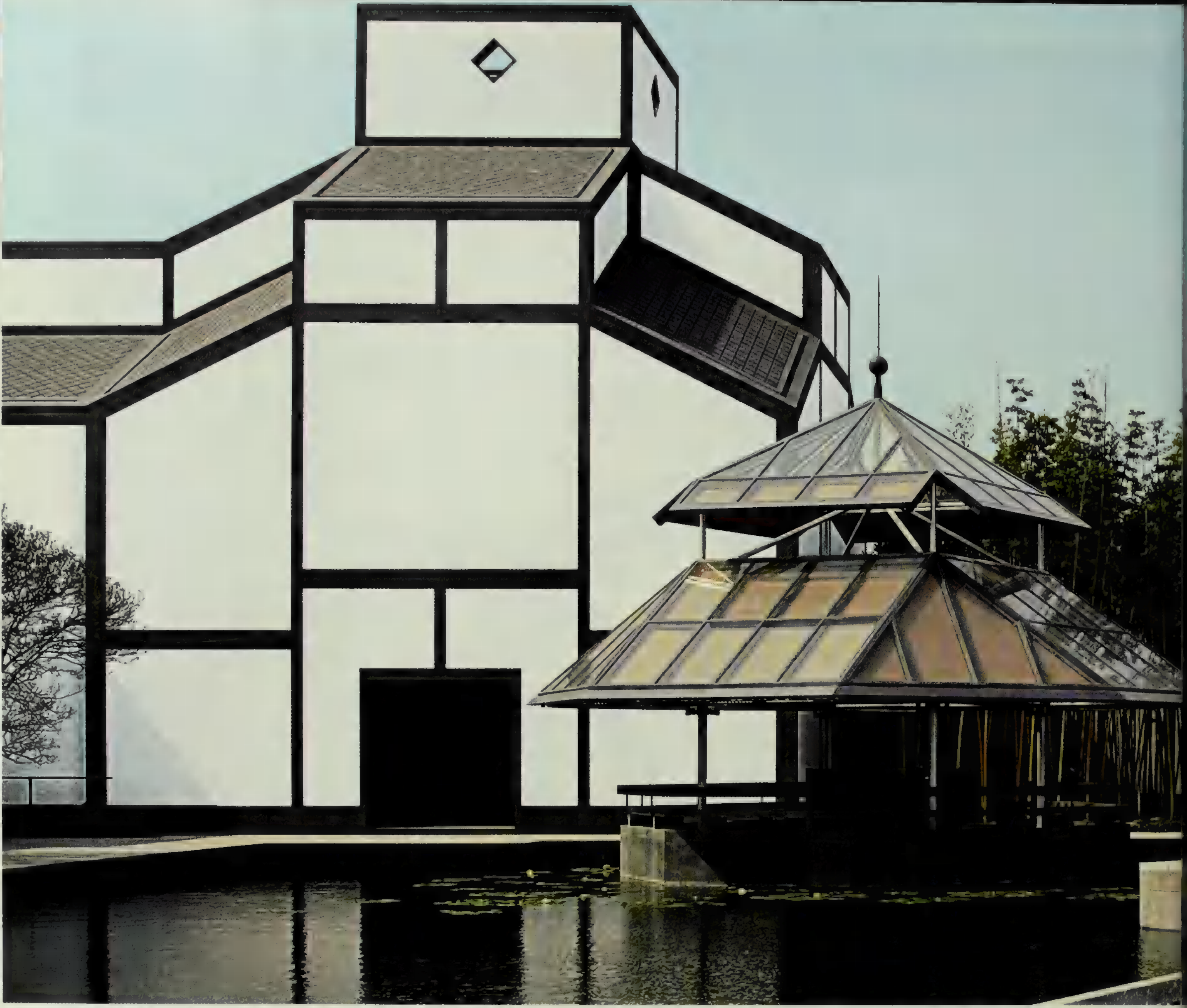
The stakes for architecture could not be higher. Local leaders have looked to architecture to provide evidence of the city's transformation, with much of that lately focused on the river. Oklahoma City's recent past is that oft-told American story of sprawl, downtown abandonment, and ill-conceived revitalization projects that go nowhere, all resulting in a bad civic self-image. The reappearance of the river could not have come soon enough. In the 1950s, the Army Corps of Engineers, seeking to control flooding in the rapidly developing oil-rich town, undertook a channeling project that partially moved and totally transformed the North Canadian River into a mostly dry, glorified ditch. Although plans for redeveloping the river began in the 1970s, nothing happened until 1993, when the city's residents approved the Metropolitan Area Projects (MAPS), a sales-tax initiative for urban improvement that included multiple projects. The resulting $56 million restoration of the rechristened Oklahoma River—really just a 7-mile stretch within the North Canadian—involved the construction of three dams and two locks, opening a huge tract of land to expansion south of the city's downtown.

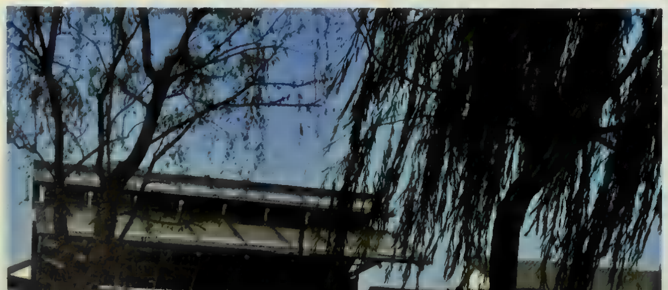
The boathouse is architecture's first response to this new context And it certainly doesn't lack for visitors; the last rowing event attracted 35,000 spectators. The Oklahoma Association for Rowing has played host to three regattas for the U.S. Rowing Association already, as well as innovated the concept of night rowing; there is even talk of Olympic team training, since the high-banked, wind-protected river's straight, 7,500-foot length of racing expanse provides ideal conditions for the sport Oklahoma City understandably concerns itself with reinvention, while Elliott's architecture mines the field of architectural manifestoes and experiments hitherto dismissed. This has proved not only productive, but popular—even, as Venturi would say, almost all right. ■

Sources, see page 208. To rate this project, go to **architecturalrecord.com/projects/**.

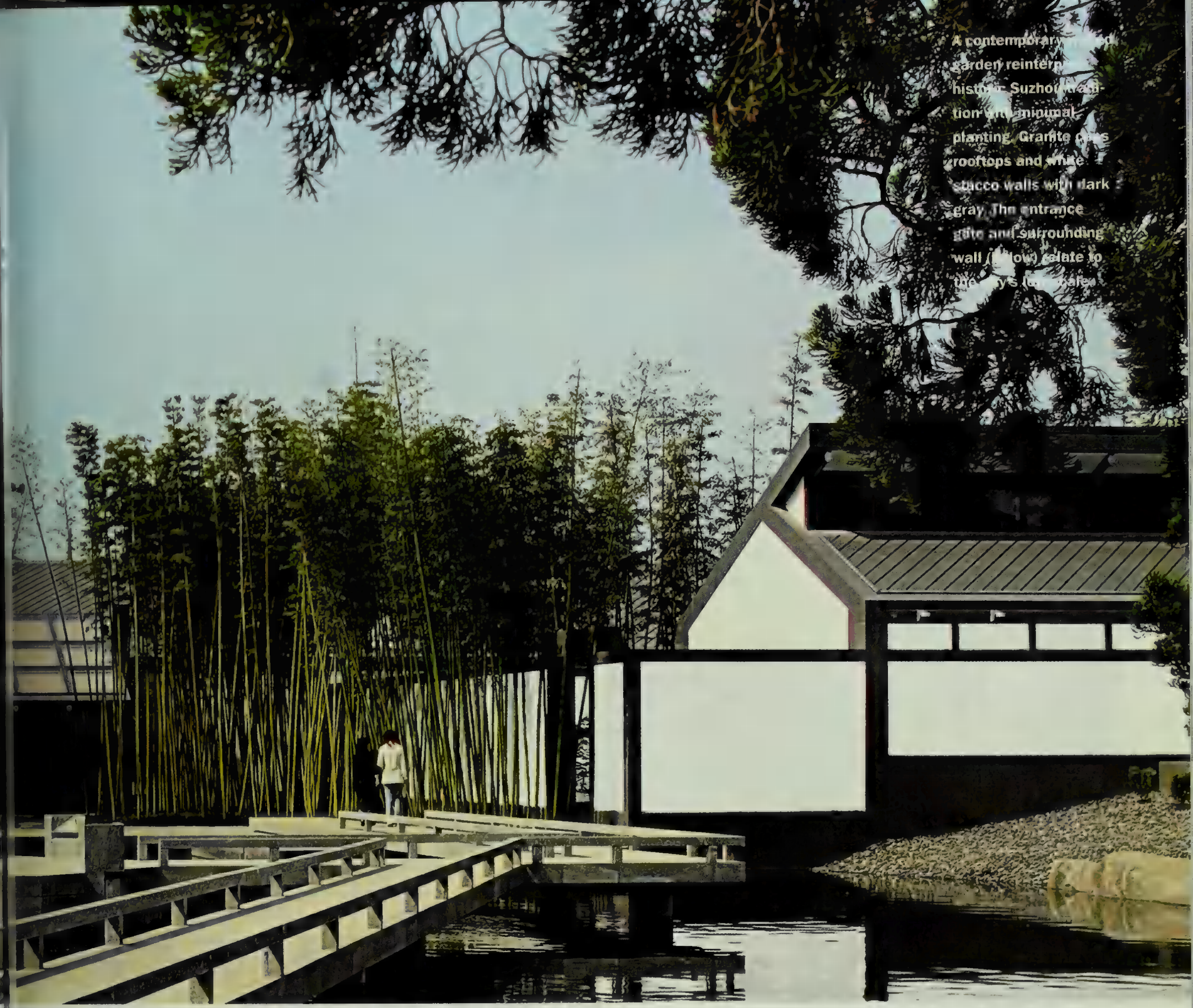
The central boat-storage room holds nearly 100 racing sculls of lengths ranging from 30 to 60 feet.

he fitness center right) has become opular with members, specially given its mple light and view to he river. The multipurpose room (far right), sed for meetings nd social functions, ncludes a 62-foot window looking into the oat-storage room.





I.M. Pei returns to his family's hometown in China and designs the **SUZHOU MUSEUM** for a sensitive, historic site



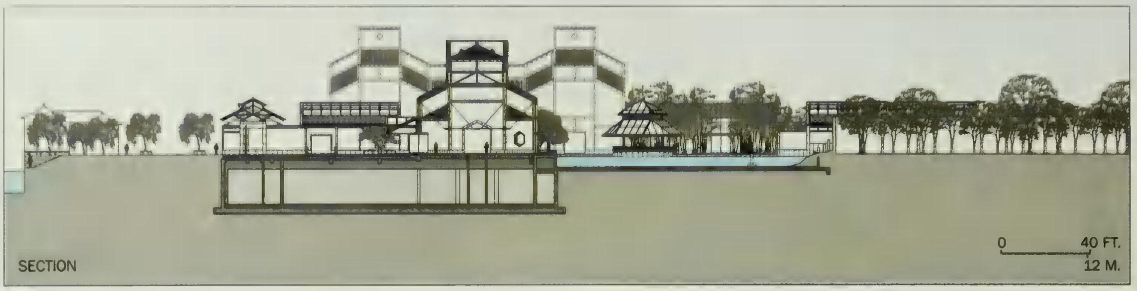
A contemporary [illegible] garden reinterprets historic Suzhou tradition with minimal planting. Granite caps rooftops and white stucco walls with dark gray. The entrance gate and surrounding wall (below) relate to the city's [illegible] scale.

y Robert Ivy, FAIA

For any architect concerned with contextual design, Suzhou presents a formidable challenge. A Chinese canal city founded 2,500 years ago, set on the lower reaches of the Yangtze River on the verge of Lake Taihu, old Suzhou (center of silk cultivation nd commerce) represented the apogee of urban sophistication—a lace where the enclosed garden evolved into a naturalistic universe in niniature. In 1997 and 2000, UNESCO identified nine of the remaining 9 walled gardens as World Heritage Sites.

In 2001, the mayor of modern Suzhou, today a prosperous rban agglomeration of approximately six million people, approached he architect I.M. Pei, FAIA, to design a museum at a critical juncture: eep in the historic district at the intersection of two canals in the ortheastern corner of the city, adjacent to a historic palace, and acked against an ultra-sensitive international treasure, the Garden of the Humble Administrator (1506–21). Pei, whose own family had owned the Lion Grove Garden (1342) nearby, had declined previous requests to build in his family's hometown, but felt that the time was now right, particularly in the light of China's building boom. Suzhou could offer a case study for contemporary design in historic environs

Project: *Suzhou Museum, Suzhou, People's Republic of China*
Architects: *I.M. Pei Architect with Pei Partnership Architects—I.M. Pei, principal; Chien Chung Pei, Li Chung Pei, partners in charge; Gerald Szeto, project manager; Bing Lin, site architect; Flora Chen, Yi-Jiun Chen, Haruko Fukui, Richard Lee, Kevin Ma, Hajime Tanimura, project team*
Local architect: *Suzhou Institute of Architectural Design*
Engineers: *Leslie E. Robertson & Associates (structural); Jaros Baum & Bolles Consulting Engineers (mechanical)*



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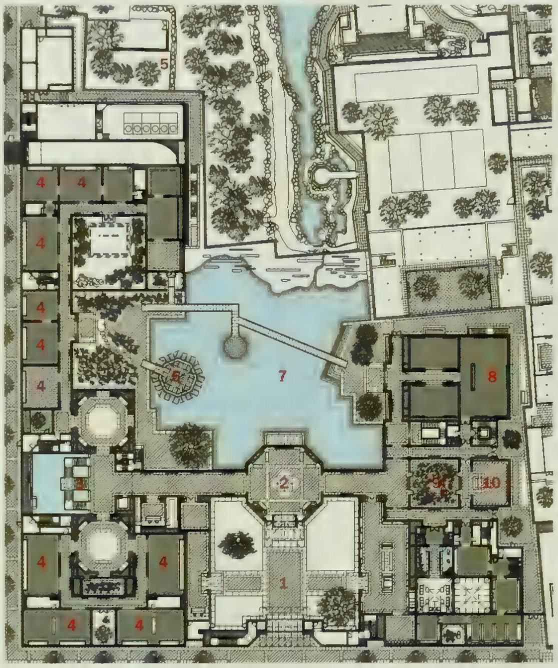
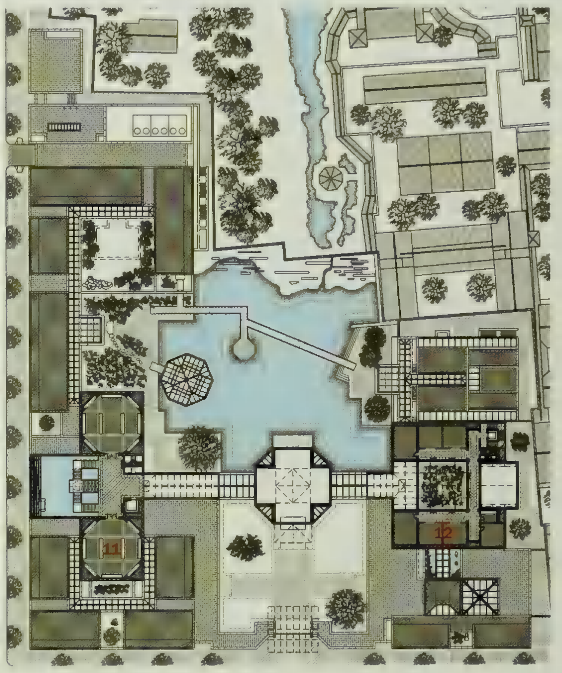
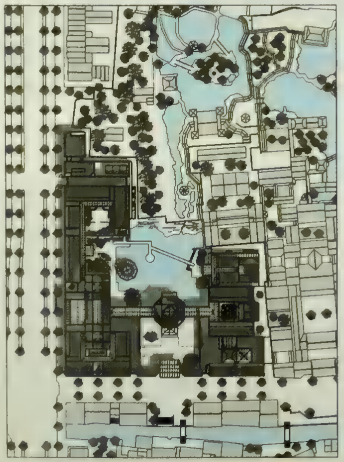


GROUND FLOOR PLAN



SECOND FLOOR

1. *Entry court*
2. *Great hall*
3. *Stair*
4. *Galleries*
5. *Garden of the Humb*
Administrator
6. *Pavilion*
7. *Lotus pond*
8. *Contemporary galle*
9. *Wisteria court*
10. *Tea room*
11. *Painting gallery*
12. *Offices*



The museum lies at the northeastern corner of a historic district on two canals, adjacent to a palace and below the Garden of the Humble Administrator (left). The courtyard plan (above) deploys galleries around a lotus pond connected to an older garden.

ɔr the new generation of Chinese planners, overnment officials, and designers.

Daunting limitations defined the roject boundaries. First, the city required a 50,000-square-foot museum to showcase its 0,000-piece collection of Chinese art that panned millennia. The design, according to fficials, needed to reflect contemporary life, et height limitations dictated that a structure not exceed 52.5 feet—no ıore than 20 feet adjacent to the existing historic buildings. Scholars at eijing's Tsinghua University suggested that the architect respect the revalent Suzhou coloration, white and gray, colors that serve as a backrop for the community's leafy green gardens and streets.

The obvious solution to height limitations, which Pei had mployed at the Pyramide du Louvre (1989), would be to depress the uilding's mass into the earth. The high water table in Suzhou, a waterncircled city, compounded the difficulty of excavating very deep. equirements demanding open space and greenery added complexity to solution that ultimately split the difference: two stories above grade and ne below, with a large quadrant on the ground plane left as garden space.

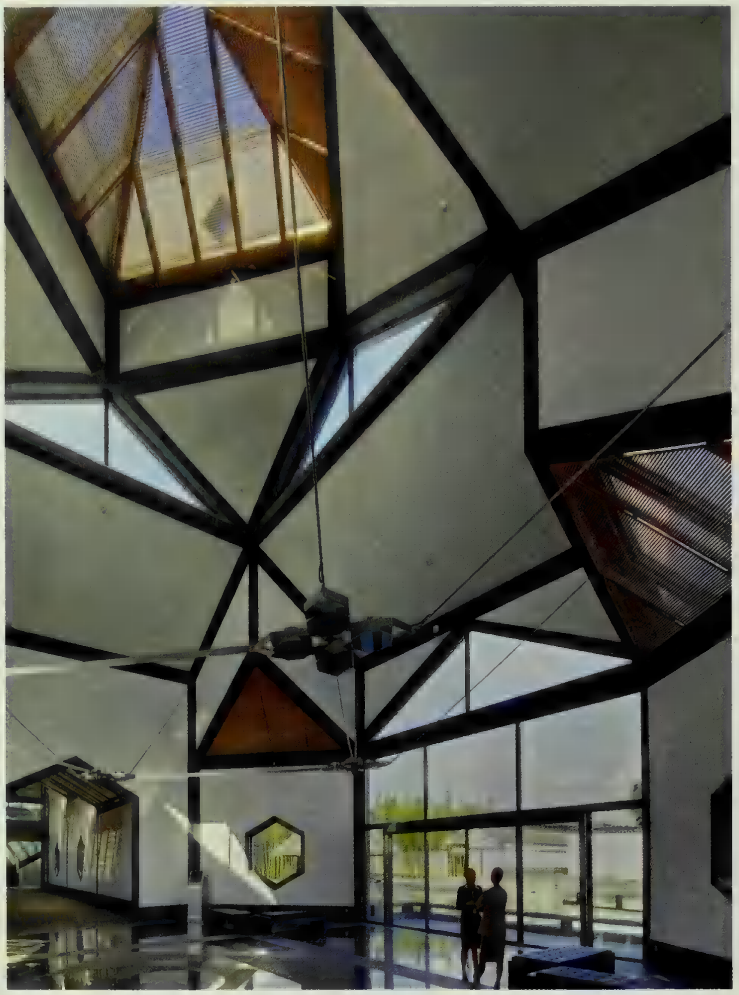
Responding to Suzhou's heritage, the architect placed a walled ırden with a void at the museum's core. Rather than compete with the ndscape iconography familiar to tourists (miniaturized trees, sculptural rock formations, scenic twists and turns), the garden's emphasis lay in the simplicity of water, rocks, and sky—more akin to the Taoist philosophy of the Tang Dynasty (618–907) than to the elaborate conventions of later centuries.

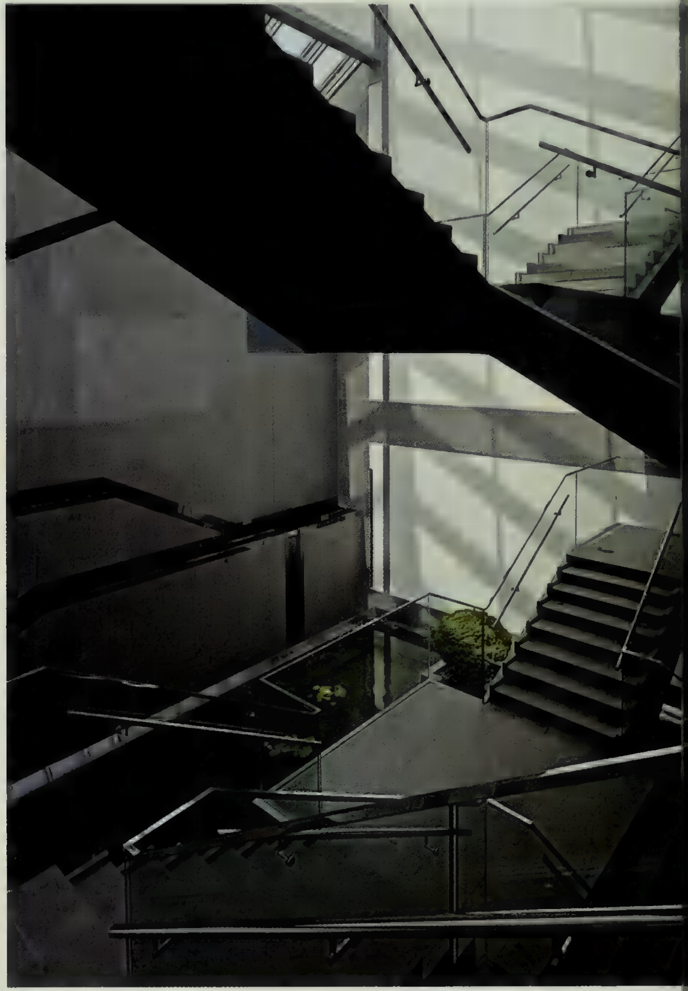
The wisteria court (left) features grafts from an ancient vine (right) onto newer stock. Doors and windows frame views of the courtyard, out to a pavilion (opposite).

Water provides a literal link to the Garden of the Humble Administrator, flowing through the common wall at the rear of the older garden into a new pond at the new museum, an open space punctuated by a stylized garden pavilion. The lotus pool formed by this stream acts as an orienting device throughout the museum, visible from multiple points within the courtyard plan, reflecting the sky into another dimension.

Plants provide an esoteric connection. In laying out a small courtyard as a wisteria court, the planners sought out a vine estimated to be 500 years old from the adjacent Prince Zhong's Palace compound, then grafted 10 small branches from the older plant onto larger, newer wisteria stock. Blossoms, shade, and fragrance bring sensory stimulation to the present and recall the mythical past.

Surrounding the lotus pool, the building plan outlines a framework of galleries on the one hand and administrative spaces on the other. The octagonal great hall at the entry, lit by a custom chandelier, frames the garden while encouraging the visitor to turn and proceed. Protected exhibition spaces lie off passageways, sized to showcase the small, precious objects that characterized Suzhou craftsmanship for an aristocracy, including ceramics, paintings, jade, and woodcarvings. A painting gallery resides on the second level, up a grand staircase backed by a granite wall





I.M. Pei, FAIA, on the Suzhou Museum

On his reasons for accepting the commission: **"The site that we were given is situated next to the biggest and best-known [garden], and not far from that is the garden that my family once owned—the Lion's Grove Garden. Our family had owned it until 1948–49. I have a sentimental attachment to the city and to the site."**

On context: **"I wanted it to be contextually correct. [The museum] is low-rise, and the garden is as important as the building. The two are related, not separate. We had to get the maximum variety out of the site."**

On differences, despite academic advice: **"I decided not to use tile and used stone on the roof and the walls. It [allowed us to] create a three-dimensional effect. A tile roof creates a horizontal plane; you only get two dimensions. [With stone] it may prove that you can get volumetric variation that you could not get otherwise."**

On the design's applicability in China: **"I have not forgotten that Suzhou is not typical of China. You could not necessarily do this elsewhere. I am not trying to create a new vocabulary for young Chinese architects. But the people of Suzhou are not uncomfortable with it. It belongs to the Lake District."**

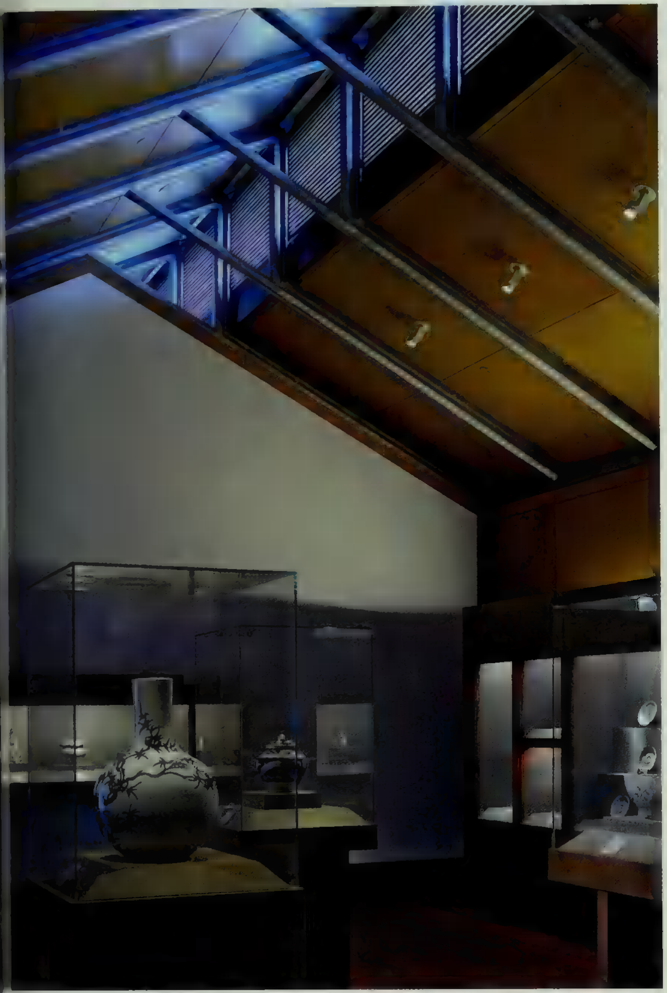
and smoothed by running water. On the garden's eastern side, Pe insisted on a contemporary gallery to showcase new Chinese art.

The contemporary deployment of stone differentiates th Suzhou Museum from earlier Chinese building. Where roofs in generations of historic Chinese architecture had been tile-covered, curvin upward at the edges, the Suzhou Museum substitutes granite. The architect contended that tile leaked and lacked uniformity. After studying th shapes of traditional buildings and the shades of stone readily availabl (including the effects of rain on the color), the Pei group settled on Chin Black granite, which now covers roofs, outlines windows, and caps whit walls. The effect is crisp, articulated, and decidedly modern.

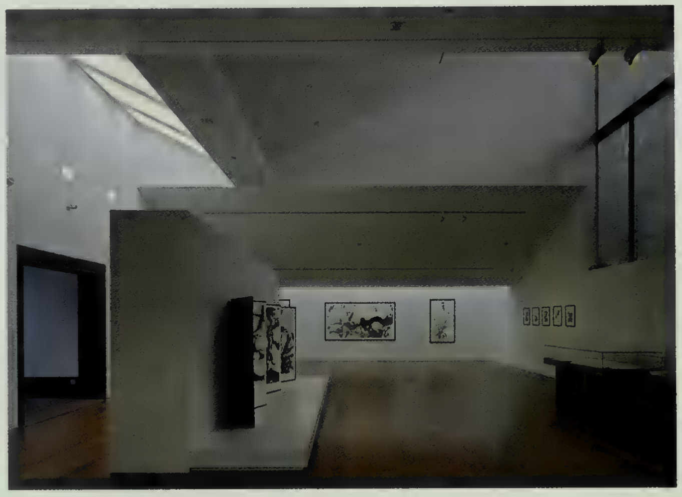
"I HAVE NOT FORGOTTEN THAT SUZHOU IS NOT TYPICAL OF CHINA. YOU COULD NOT NECESSARILY DO THIS ELSEWHERE."

Pei involved himself in every aspect of the work. According t the Pei Partnership's on-site architect, Bing Lin, ultimately Pei and hi two sons, Chien Chung Pei and Li Chung Pei, selected every rock an every tree. The project opened with a celebratory event on the Night o the Mid-Autumn Festival on October 6, 2006. ■

Sources, see page 208. To rate this Project, go to **architecturalrecord.com/projects/**.



The great hall (opposite, left) concatenates geometric motifs on the floor, walls, and ceiling. A custom metal chandelier punctuates the space above window walls overlooking the lotus pool. The grand stair seemingly floats between two upper levels and one below grade. A water feature animates the rear wall, which flows into an interior pool (opposite, right). In the ceramics gallery (left) and the contemporary gallery (below), clerestories filter light through embedded sunshades that resemble indigenous wood patterns.



Analysis

How does an architect build adjacent to a World Heritage site? The con-emporary response to a strong vernacular tradition continues both to timulate and to vex designers. Too often, the answer lies in overstatement, though not for I.M. Pei. Modesty of scale and materials, born of spareness, prescribed limits, and simplicity, mark the Suzhou Museum.

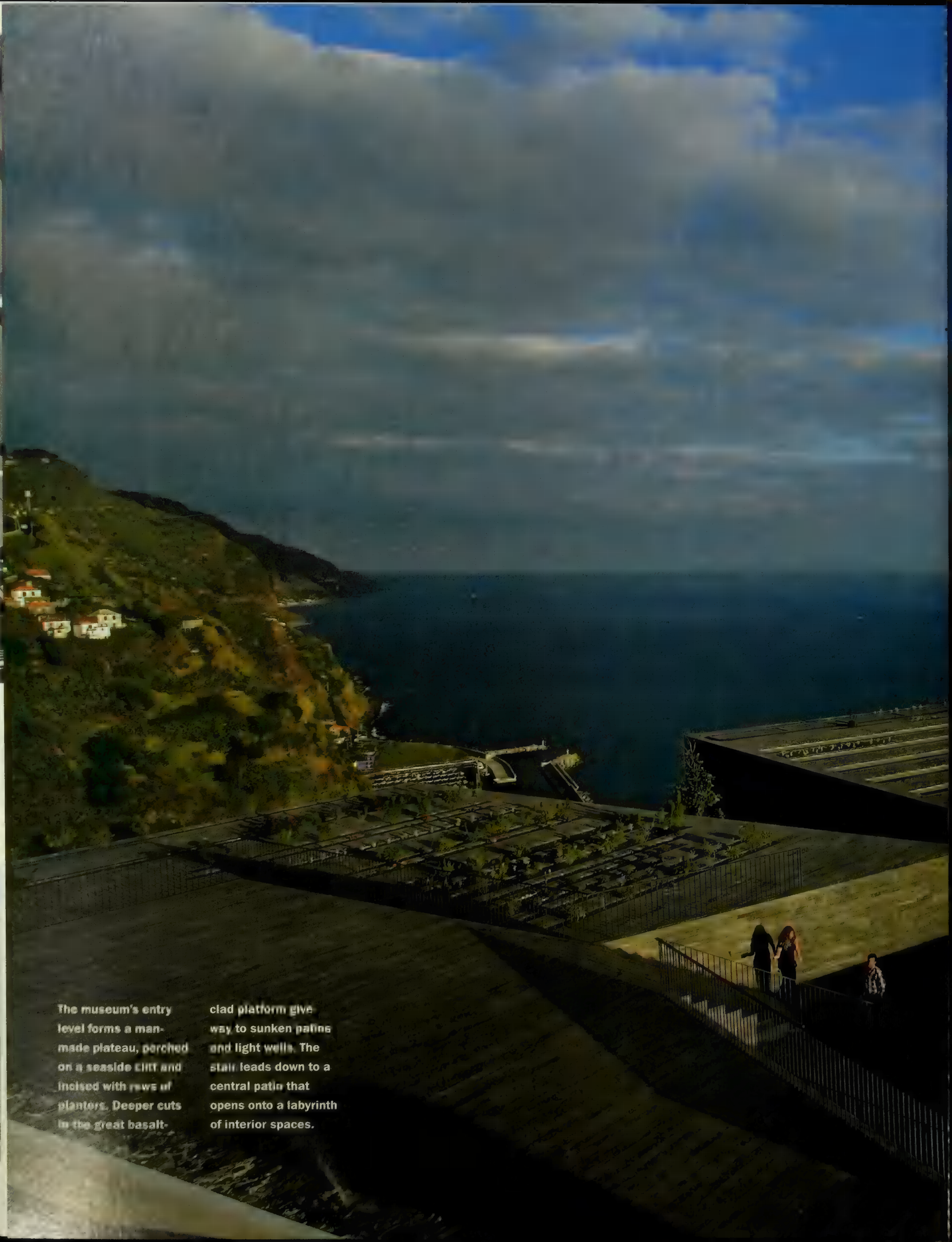
While a new generation might have hoped for an evolutionary project that captured the geometrical clarity of Pei's earlier signature works, such as the East Wing of the National Gallery, in Washington, D.C. 1974–78), or the aforementioned Louvre, instead the Suzhou Museum acrifices bold formalism for a kind of Postmodern deconstructivism not an oxymoron in this case), in which underlying historic themes are broken into shards, rendering prevailing geometries into motifs that fit within the strictures of the surrounding walled courtyard. The well-intentioned result seems focused on kinesthetic experience versus a static, levational overview of the whole, familiar in the Beaux-Arts tradition.

Not a reprise of the finesse of the precious East Wing, where ritical details have been honed to machined perfection, and with a smaller budget, the Suzhou Museum reflects its location at the heart of n ancient city in contemporary China. Walled in, literally surrounded by stucco walls capped with China Black granite, the entire project bstracts motifs from a remembered past, simplifying and reinterpreting them for the 21st century.

Seen from the lotus pool in the interior courtyard, planar walls and roofs achieve a monumentality of scale, in which three-dimensionality is heightened, even exaggerated, by dark granite outlines. Austere and blocklike, its unadorned interior courtyard walls sometimes stretched beyond expected proportions, the spaces beg for greenery and may ultimately be softened by the infill provided by waterborne lotus plants.

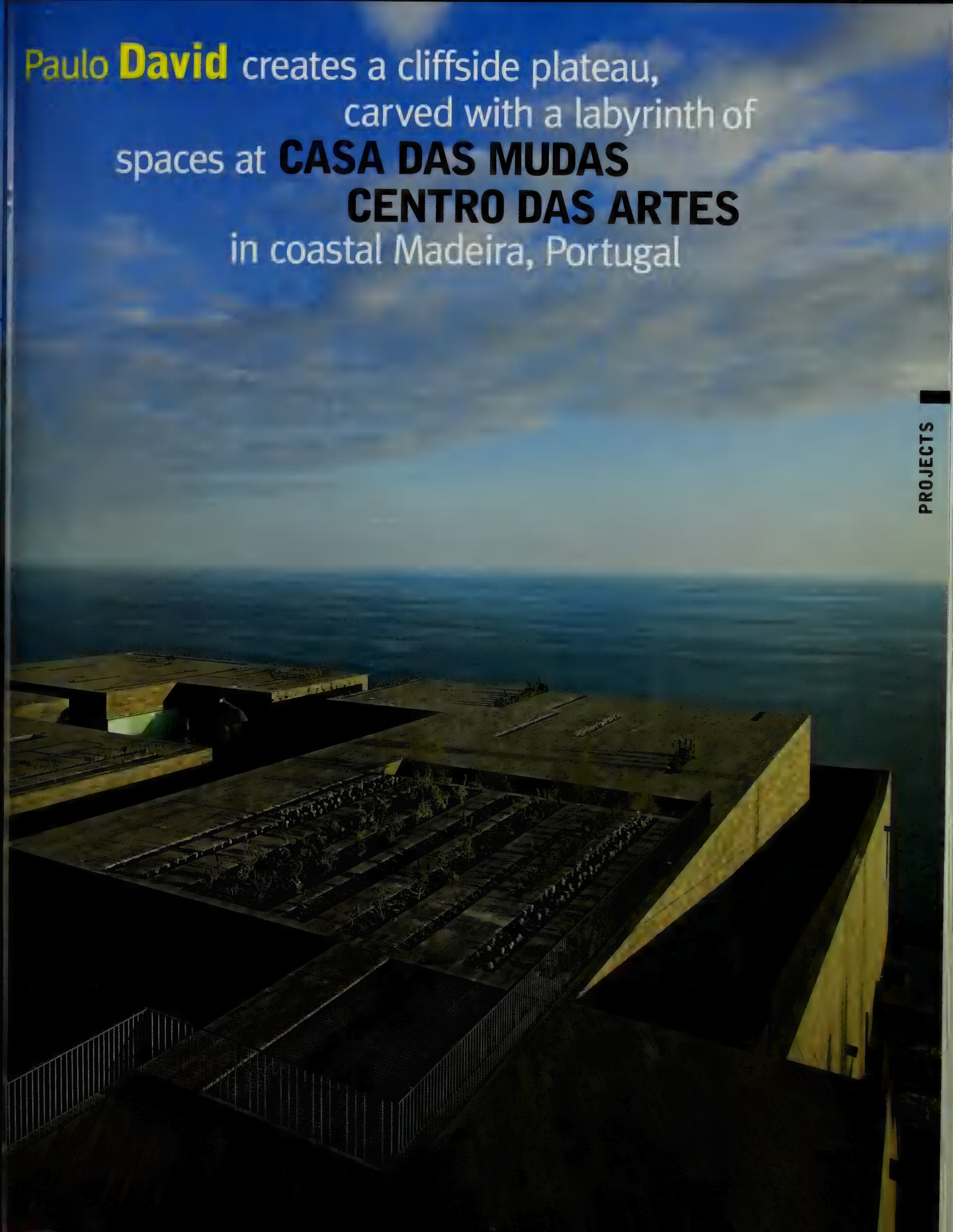
Inside, a surprising modulation of scales accompanies function: generously wide corridors in public areas achieve grandeur, while galleries and interior courtyards provide moments of intimacy for individuals to sit or converse. The pathway brings experiential richness. Natural light creates a soft ambience, even in galleries, illuminated by high clerestories, which filter light for ceramic objects from above and warm the wood walls. Hexagonal viewing windows frame controlled views to the exterior pavilion or to a poetic tree.

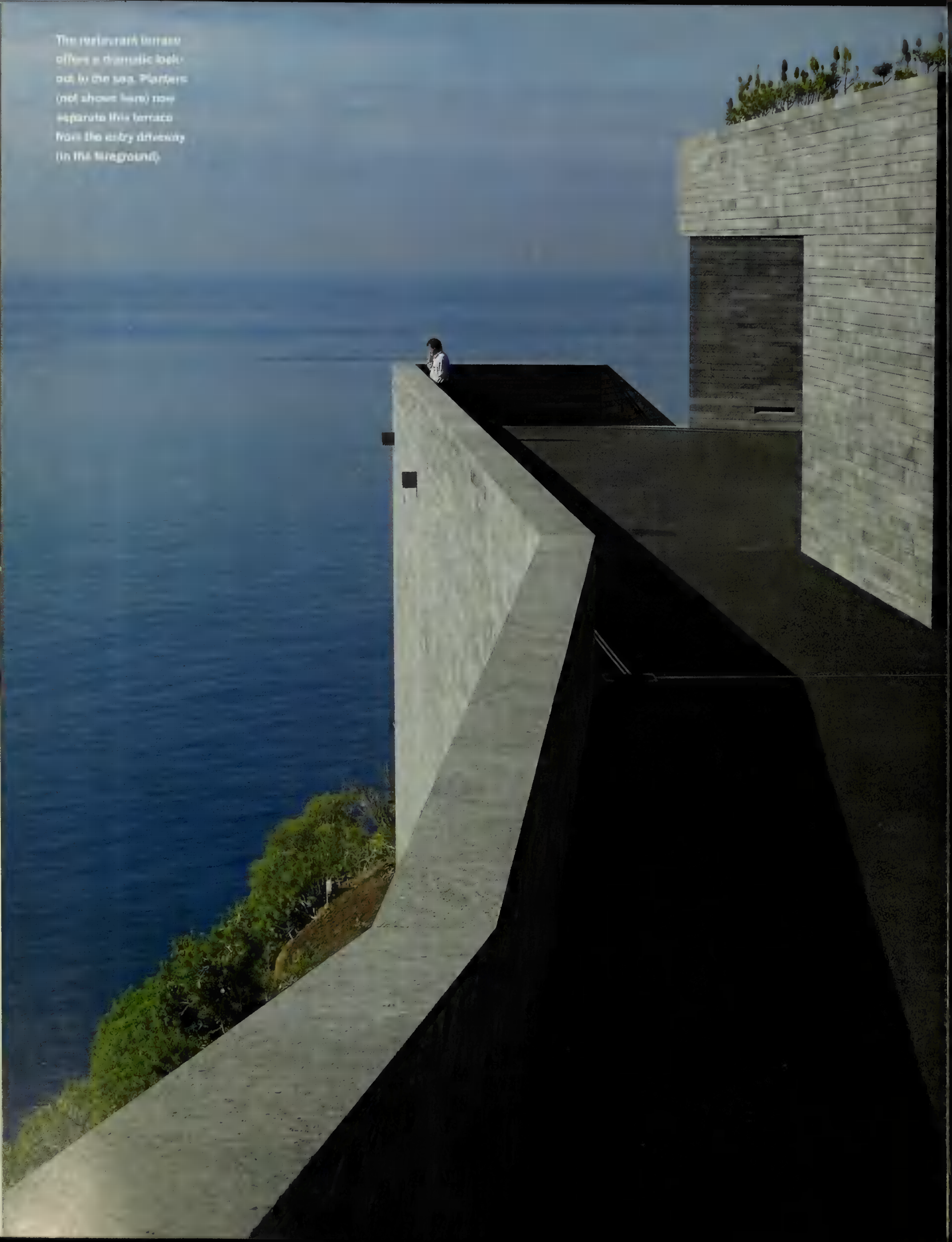
The Suzhou Museum represents Pei's highly personal essay on building in strong context in this cradle of Chinese culture. Referential without explicitly copying precedent, respectful of its surrounding constraints, the complex nevertheless breaks no new ground. If the Suzhou Museum sometimes reverts to the scenographic, the walled-in, three-dimensional project succeeds by doing no harm to its hypersensitive environment while offering a new generation of Chinese architects a modest model drawn from precedent—to reflect on, to debate and criticize, to react to, and to create their own new work. *R.I.*



The museum's entry level forms a man-made plateau, perched on a seaside cliff and incised with rows of planters. Deeper cuts in the great basalt-clad platform give way to sunken patios and light wells. The stair leads down to a central patio that opens onto a labyrinth of interior spaces.

Paulo **David** creates a cliffside plateau, carved with a labyrinth of spaces at **CASA DAS MUDAS CENTRO DAS ARTES** in coastal Madeira, Portugal





The restaurant terrace offers a dramatic look-out to the sea. Planters (not shown here) now separate this terrace from the entry driveway (in the foreground).

By David Cohn

The Casa das Mudas Centro das Artes, on the Portuguese Island of Madeira, crowns a basalt promontory 600 feet above the Atlantic, but from its entry atop the precipice, the building disappears. Toward the cliff's edge, past the simple 16th-century house that gives the art center its name, an expansive, inaccessible platform of basalt starkly frames the sea and distant horizon. This stone surface bears what appear to be runic incisions, but are actually rows of planters, and the deeper erosions formed by sunken patios and light wells. Visitors arriving by car catch another plunging glimpse of the sea as they ramp down into the garage under the entry terrace.

From the approach by car or on foot, the art center unfolds as a labyrinthine excavation of this stunning man-made plateau. The route into the building descends from the entry terrace (or rises from the garage) to a central patio, open to the sky, where the lobbies of the new structure's three wings open to a changing spatial choreography, masterfully composed by local architect Paulo David, of narrow, descending stair shafts, expansive halls, and sudden exterior views.

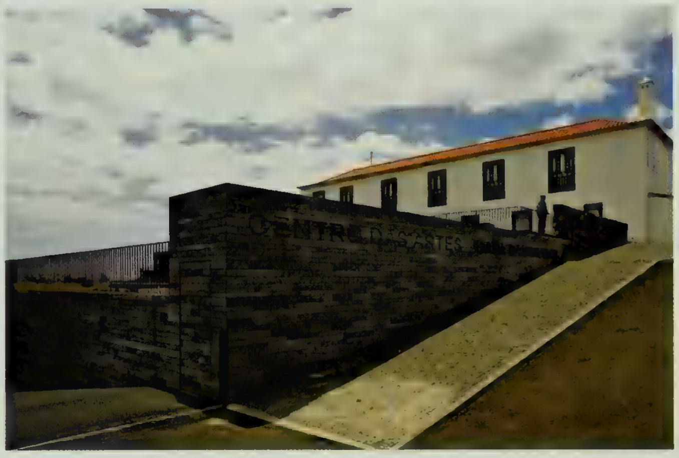
Three hundred miles from the African coast and 625 miles southwest of Lisbon, this lushly vegetated volcanic island, bathed by the warm currents of the Gulf Stream, has been a crossroads of trade among six continents since the 15th century. At one of Europe's most far-flung corners, Madeira benefits today from European Union funds, which the regional government has invested in a coastal highway and an enlarged airport, spurring explosive tourist development over the past 10 years.

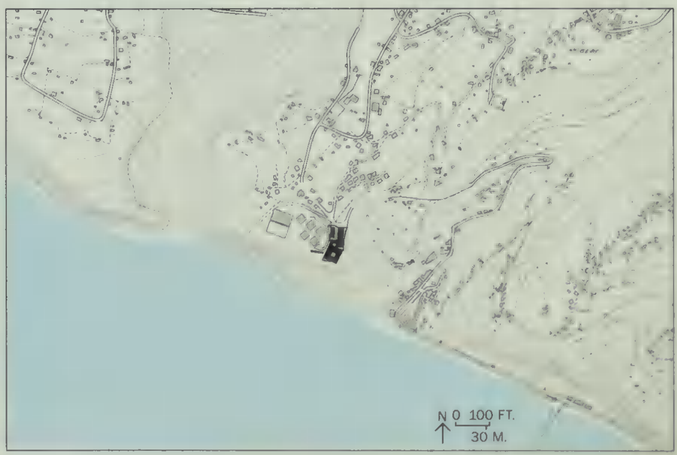
David's project for Casa das Mudas ("Deaf Women's House," as the restored original structure, now used for small exhibitions, is called) was also made possible by European funding. His 130,000-square-foot building, completed for just under $20 million, stands 15 miles west of Funchal, Madeira's capital, helping to decentralize the island's cultural offerings. Exhibitions at the center, dedicated to contemporary art, include rotating loans from the large collections in 20th-century painting, sculpture, and photography of Joe Berardo, a Madeira native and philanthropist. David, who had worked under architect Gonçalo Byrne in Lisbon, opened his own office 10 years ago and now has a staff of seven. His other recent works include a public swimming pool on Madeira's rocky coastline and a stark, Miesian apartment building in Funchal.

The island's near-vertical topography, cultural history, and rapid development all came to bear on his Casa das Mudas design. Until the 1950s, the site was accessed mainly by boat, and later by a dangerous, snaking road above the coast. The new highway bores through the island's rocky terrain with dozens of tunnels. "With the tunnels, you go too fast, you are lost," the architect says. "But my images from my childhood are of stopping at lookouts to see the incidents of the landscape, the cliffs and valleys." And so, he decided to make a revelation of the site's sublime

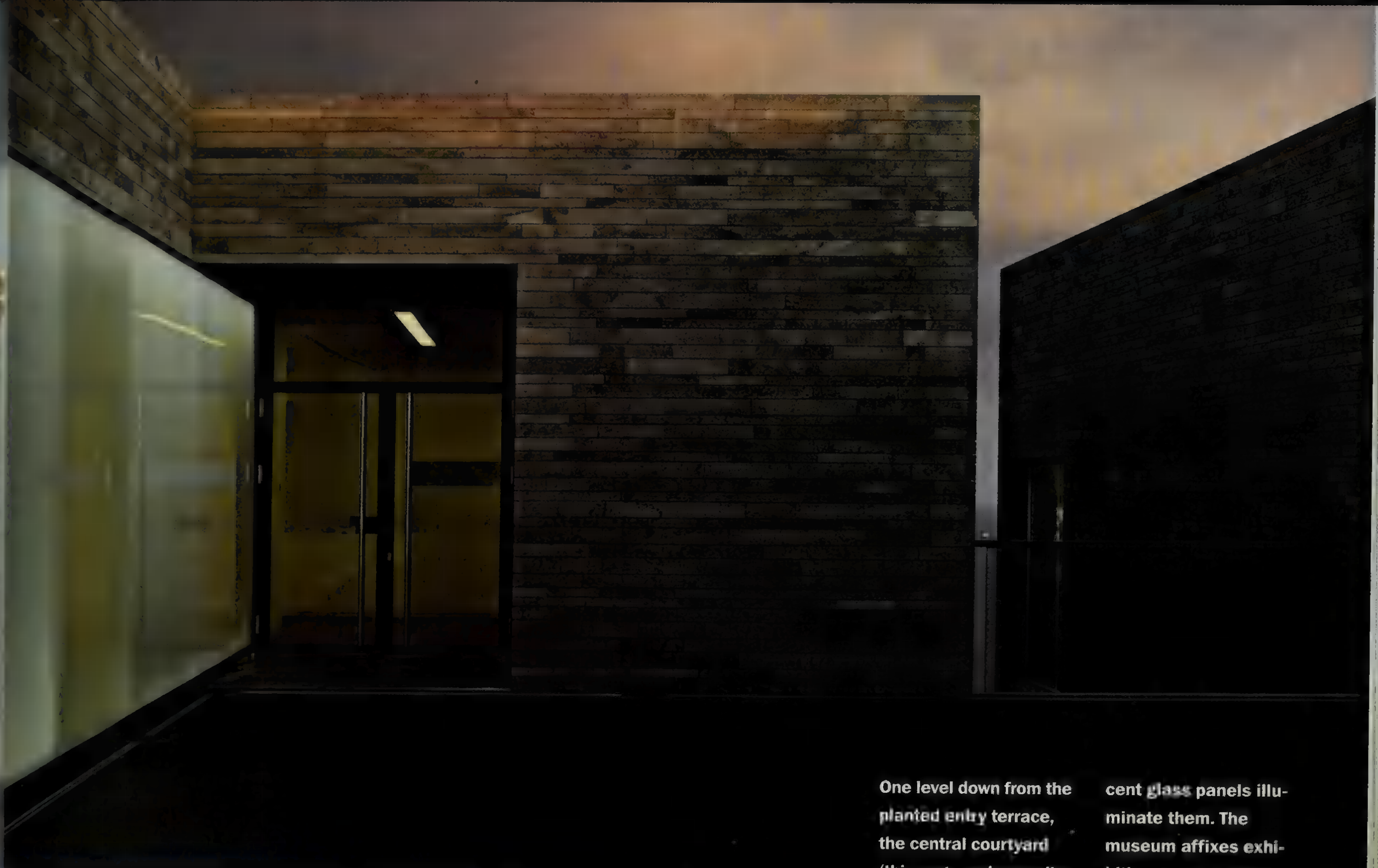
David Cohn is RECORD*'s Madrid-based correspondent.*

Project: *Casa das Mudas Centro das Artes, Madeira, Portugal*
Architect (art center): *Paulo David Arquitecto—Paulo David, principal; Rodolfo Reis, Filipa Tomaz, Silvia Arriegas, Luis Spranger, Luz Ramalho, Susanne Selders, Dirk Mayer, Inês Rocha, Patrícia Faria, team*
Architects (auditorium interior): *Telmo Cruz, Maximina Almeida, and Pedro Soares, with Hugo Alves, Barbara Silva, Luis Monteiro, Alexandre Batista, team*
Engineer: *Betar*
Landscape: *Proap*
Lighting: *Fernando Sousa Pereira*
Acoustics: *Certiprojecto*
General contractor: *Concreto Plano*

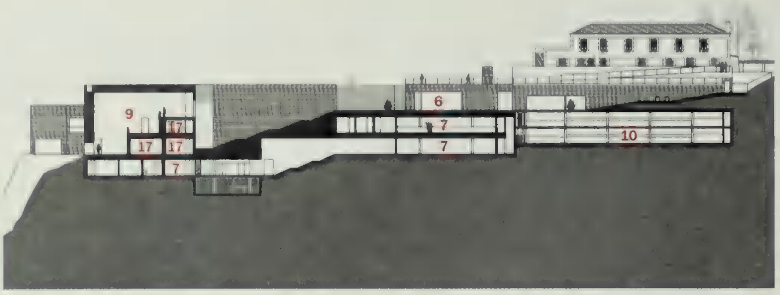




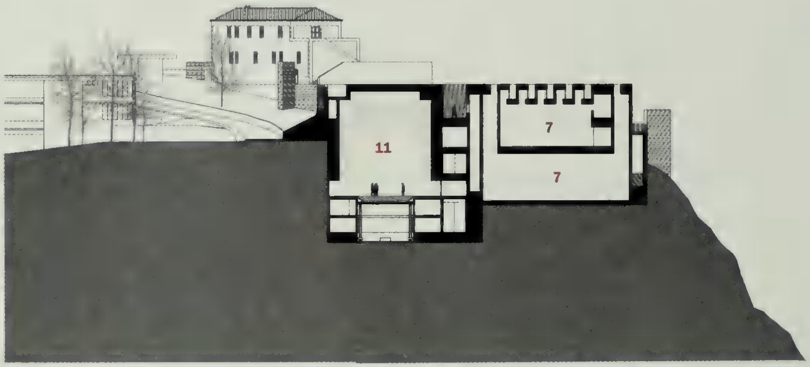
The 16th-century Casa das Mudas (Deaf Women's House) stands just up the hill from Paulo David's new building (top and site plan). The original house (middle) is now part of the contemporary art center, providing gallery space for small exhibitions.



One level down from the planted entry terrace, the central courtyard (this page and opposite two) provides access to the art center's bookshop and three lobbies. LED strips at the tops and bottoms of translucent glass panels illuminate them. The museum affixes exhibition posters to the exterior surfaces of these glowing rectangles. Some panes, but not all, admit light to the interior.



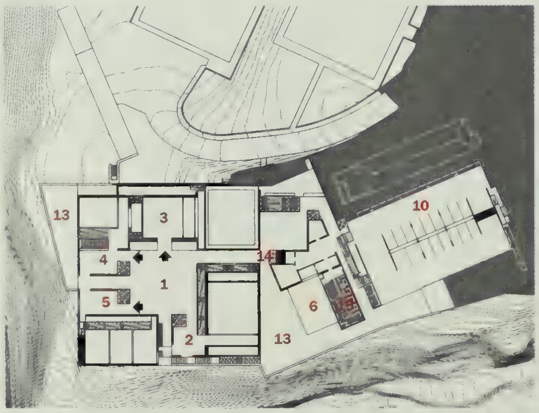
SECTION B-B



SECTION A-A

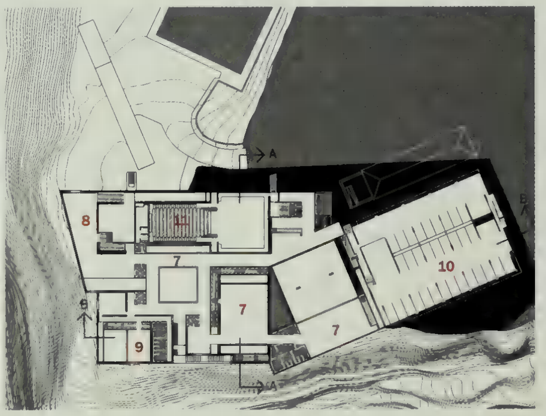
0 20 FT.
6 M.

1. *Central courtyard*
2. *Entry to galleries*
3. *Museum bookshop*
4. *Entry to auditorium*
5. *Entry to library and workshops*
6. *Restaurant*
7. *Gallery*
8. *Auditorium lobby*
9. *Library*
10. *Garage*
11. *Auditorium*
12. *Storage*
13. *Terrace*
14. *Entry stair from above*
15. *Kitchen*
16. *Delivery*
17. *Classroom*



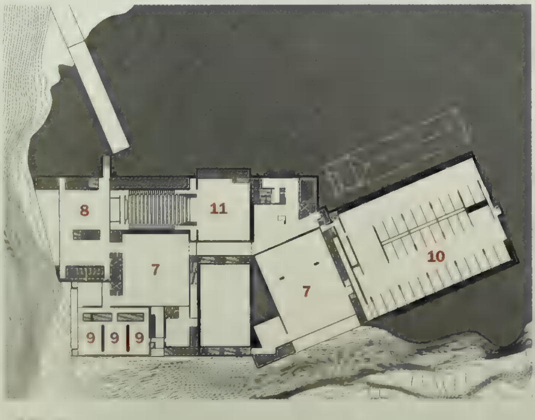
LEVEL Ø

N 0 30 FT.
9 M.

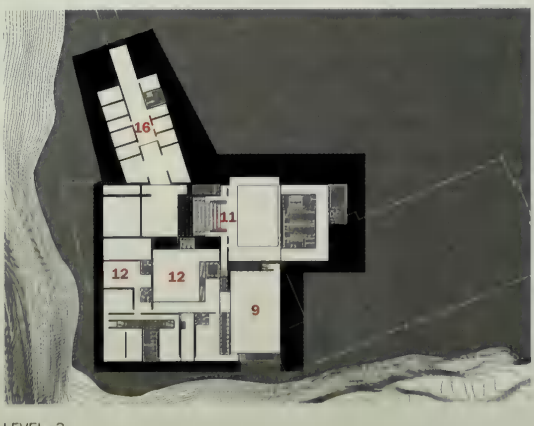


LEVEL -1

0 30 FT.
9 M.



LEVEL -2



LEVEL -3

From the entry plateau, the building steps down the slope (top section, above). A section through the theater and exhibition areas (bottom section, above) reveals baffled skylights in one gallery and deep perimeter light wells in the art space directly below it.

Casa das Mudas's
merous stairs vary
n form, with some
erted between walls
nd others, like this
e (top), freestanding.
galleries open to
rising views of the
dscape (bottom).

A long, straight run of steps connects three levels in the classroom wing. The same stair presents a strikingly different character in views from its bottom up (above) versus its top down (left).

"WE TRIED TO ELIMINATE DISTRACTING MURMURINGS, SO THE ART WOULD BE THE MOST IMPORTANT THING."

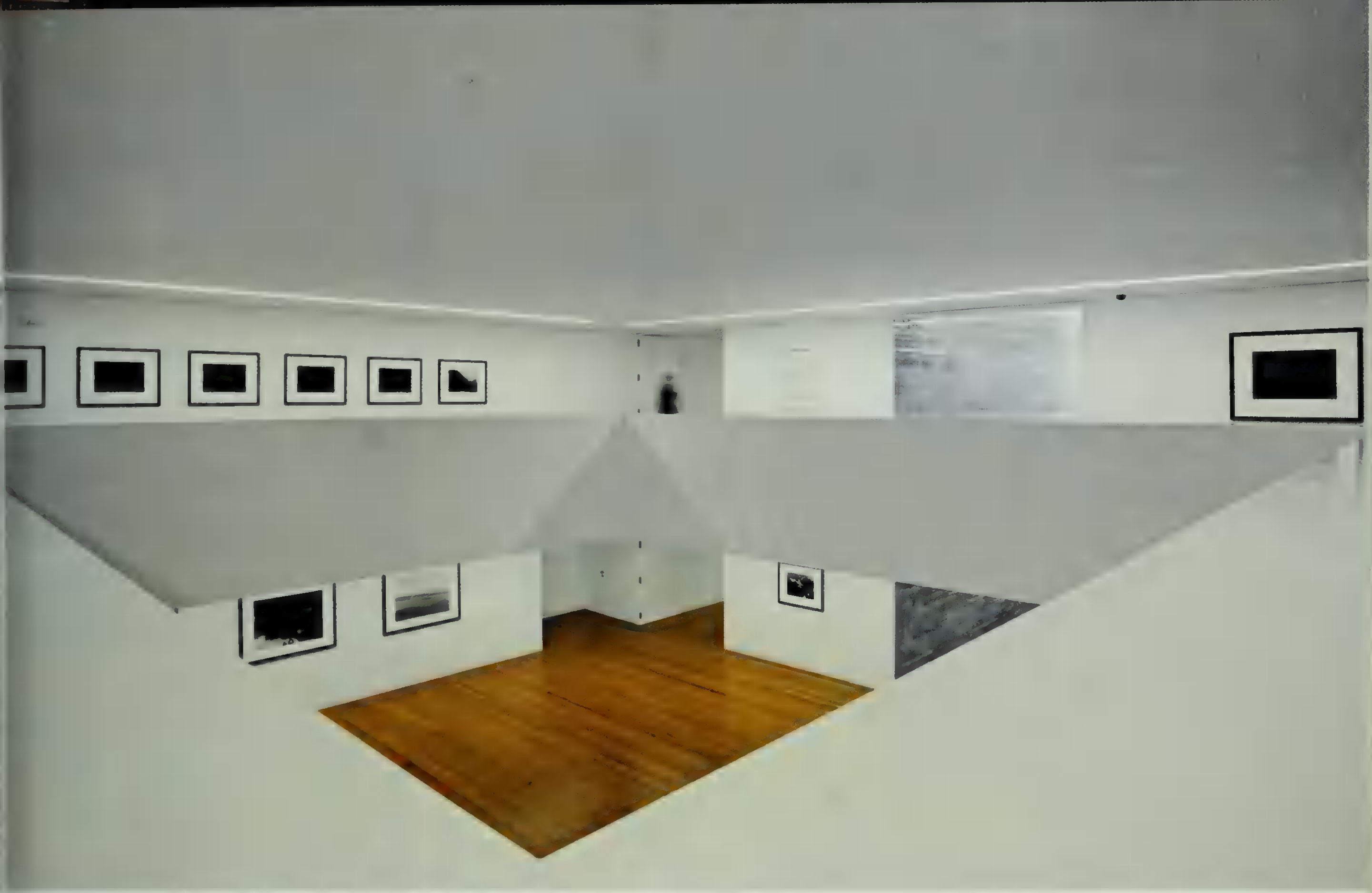
views the culminating point of orientation for visitors driving in fror Funchal. "The building had to be at the summit of the mountain, bu couldn't compete with it," he observes. His approach was to emulate th island's traditional fusion of landscape and built form, characterized b houses on narrow platforms atop rough basalt retaining walls, perched o the steep slopes. Finishing his own building in gray basalt, the archite emphasized the material's abstract, sculptural qualities by applying it i thin, smooth-cut, horizontal strips with minimal detailing: One-inch thick pieces of the stone, dry-jointed and glued on, cover the building concrete walls and its concrete roof pavers, which float over a waterproo substrate for drainage. Though imported from the Azores for reasons c cost and availability, this basalt, handsomely textured with minute natural air pores, fits sympathetically into its surroundings

To bring this remote venue to life as a local meeting point— social function that David praises in museums such as the Tate Modern i London—the architect emphasized a series of outdoor public spaces including a restaurant terrace and seaside lookout carved out of the to platform, and a sunken court for sculpture near the entry.

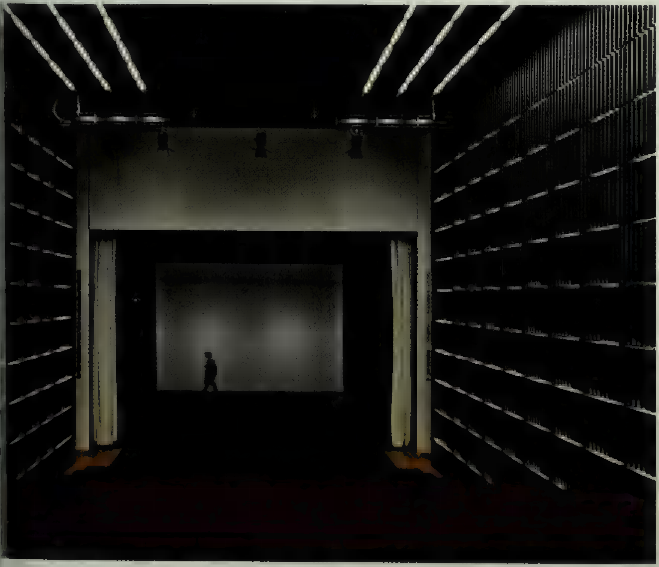
Accessed from the central patio, the building's various section —a museum wing with a suite of galleries, a multifunctional auditorium a library-workshop-classroom wing, and a bookshop—can functio independently or together. Relying on a mixed structure of concrete wit steel beams for large spans, David was able to create a descending chain c four double-height galleries in the museum wing, connected by narro runs of stairs in the thick walls between the exhibition spaces—alternating the sense of compression and release. Introducing daylight into two o the galleries through clerestory windows and deep wells that illuminat even the lowest level, he opened the remaining galleries to heart-stoppin views of the coastline below. The architect finished the spaces simply wit white walls, floors of Brazilian garapa wood, and strips of warm fluorescent-tube lighting (modifiable according to exhibition needs), and in th stairs, tube-lit, carved Corian handrails. "We tried to eliminate distractin murmurings, so that the art would be the most important thing," Davi explains. The library-classroom wing cascades through three levels wit narrow stairs and open trays of space to a sunny seaside terrace. Architect Telmo Cruz, Maximina Almeida, and Pedro Soares, practicing independently from David's office, designed the interior of the 200-seat auditoriu with warmly upholstered seating and latticed wood walls.

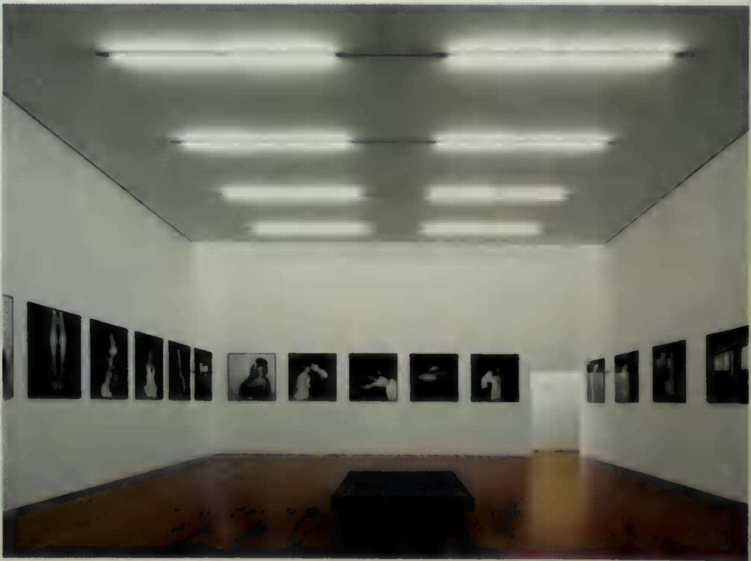
The building's greatest strength and originality resides in it powerful encounter with nature. The exterior plinth has the iconi presence of a prehistoric temple, while the sophisticated, minima detailing evokes the primitive simplicity of ancient construction, paying homage to sea and sky. ■

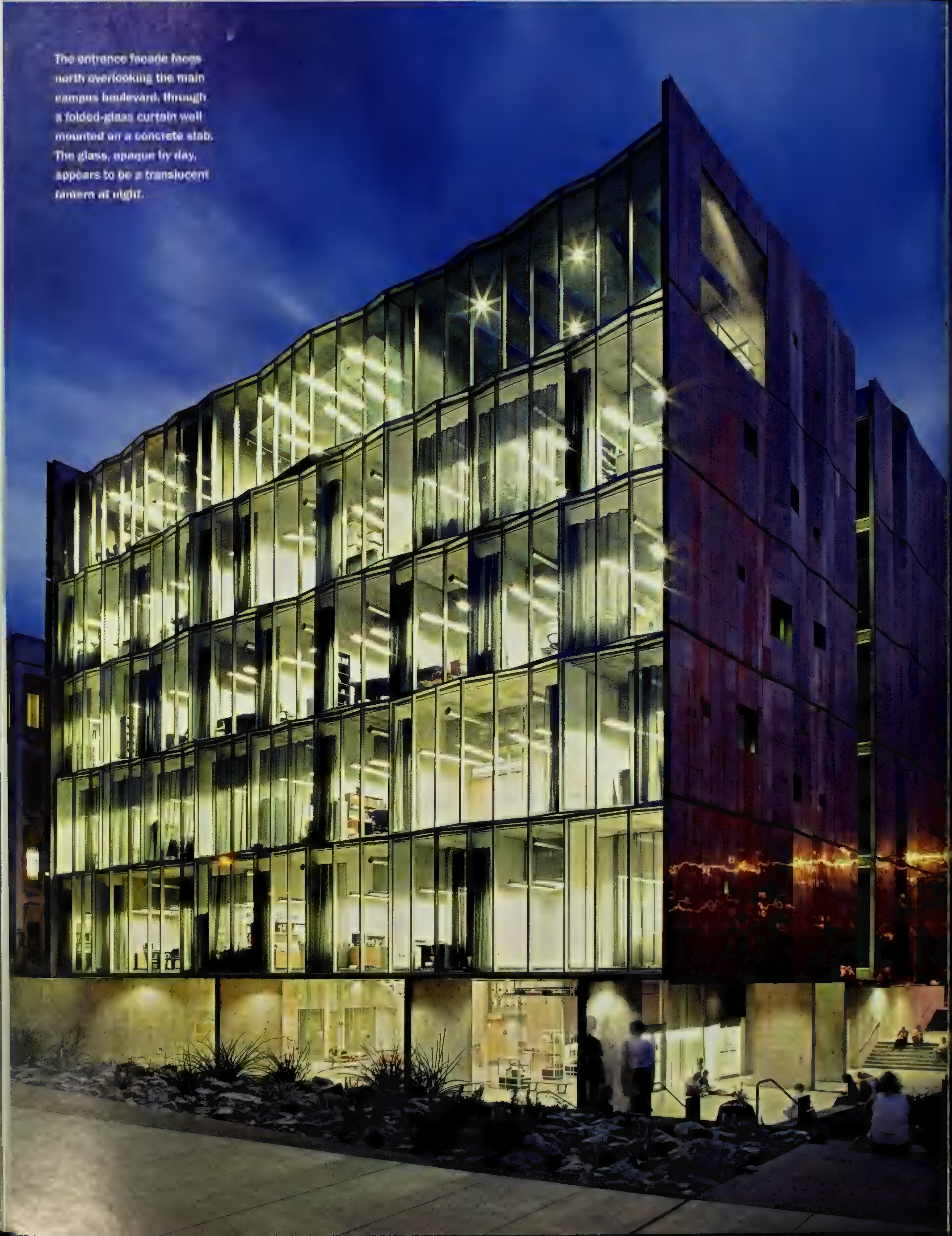
Sources: see page 208. To rate this project, go to ***architecturalrecord.com/projects/***



All the double-height spaces introduce themselves to the visitor from the upper level (above). Tube lights have varied configurations in the interior: set, for example, at the ceiling's perimeter (above) or like lightning bolts in sculpted handrails (opposite, bottom) or in rows overhead (below right) or behind the wood lattice lining the theater (below left).







The entrance facade faces north overlooking the main campus boulevard, through a folded-glass curtain wall mounted on a concrete slab. The glass, opaque by day, appears to be a translucent lantern at night.

Richärd and Bauer designs an outstanding laboratory space for the MEINEL OPTICAL SCIENCES EXPANSION at the University of Arizona in Tucson

ly Suzanne Stephens

Richärd + Bauer, a young Phoenix-based firm, has demonstrated numerous times in its 11-year history [see RECORD, December 2001, page 70] that it can still advance architectural quality in inexpensive institutional buildings. Its new Meinel Optical ciences Expansion at the University of Arizona in Tucson makes an even ıore emphatic claim for architectural innovation, spatial complexity, and ıe arresting use of light and materials. On top of that, the 47,000-square- ›ot structure cost only $14 million to build.

The commission from the College of Optical Sciences came with ertain incentives. The three principals, James Richärd, AIA; Kelly Bauer, n interior designer; and Stephen Kennedy, AIA, had studied at the univerty and wanted to leave a memorable mark on their alma mater. And since ıe college ranks as one of the top optical-science schools nationwide, it eeded to "speak of its status in its field," says May Carr, senior architect for ıe university's office of Facilities Design and Construction.

In following this mandate, Richärd + Bauer sought to bring ›out the same conflation of institutional identity with architecture chieved by a canonic predecessor in laboratory design, Louis Kahn's Salk ıstitute for Biological Studies in La Jolla, California, of 1965. The firm nulated Kahn's containment and manipulation of light and clarification f function at the Salk, as it admired the integration of architecture with ature displayed in Tod Williams and Billie Tsien's 1995 Neurosciences ıstitute nearby. The Tucson project was to be an addition to a 1960s uilding fronting University Boulevard, the main street of the university ımpus. Since the 6-story expansion would occupy a corner site, the orthern (entrance) facade and the west elevation would be seen easily om afar. (The east side hooks into the existing building, and the south de is bordered by a parking lot.)

The program called for flexible laboratories, where 200 underaduate and more than 200 graduate chemists, physicists, optical engineers,

---

oject: *Meinel Optical Sciences cpansion, University of Arizona, ıcson*

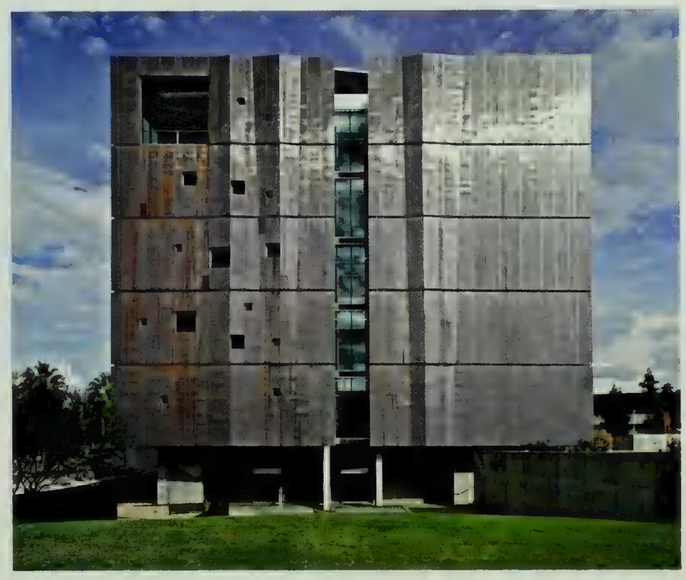
chitect: *Richärd + Bauer—James chärd, AIA, Kelly Bauer, Stephen ennedy, AIA, principals; Andy mberg, project architect*

ıgineers: *Arup, Los Angeles (structural, m/e/p); KPFF Consulting Engineeers (civil)*

Landscape: *Sage Landscape Architecture*

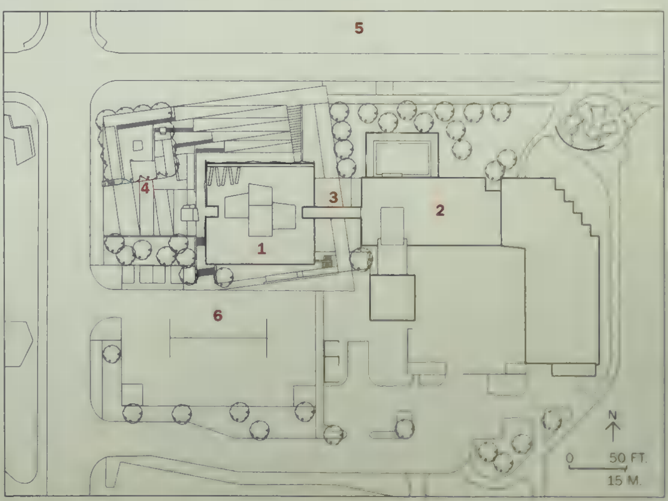
Consultants: *Arup (IT); Earl Walls Associates (lab)*

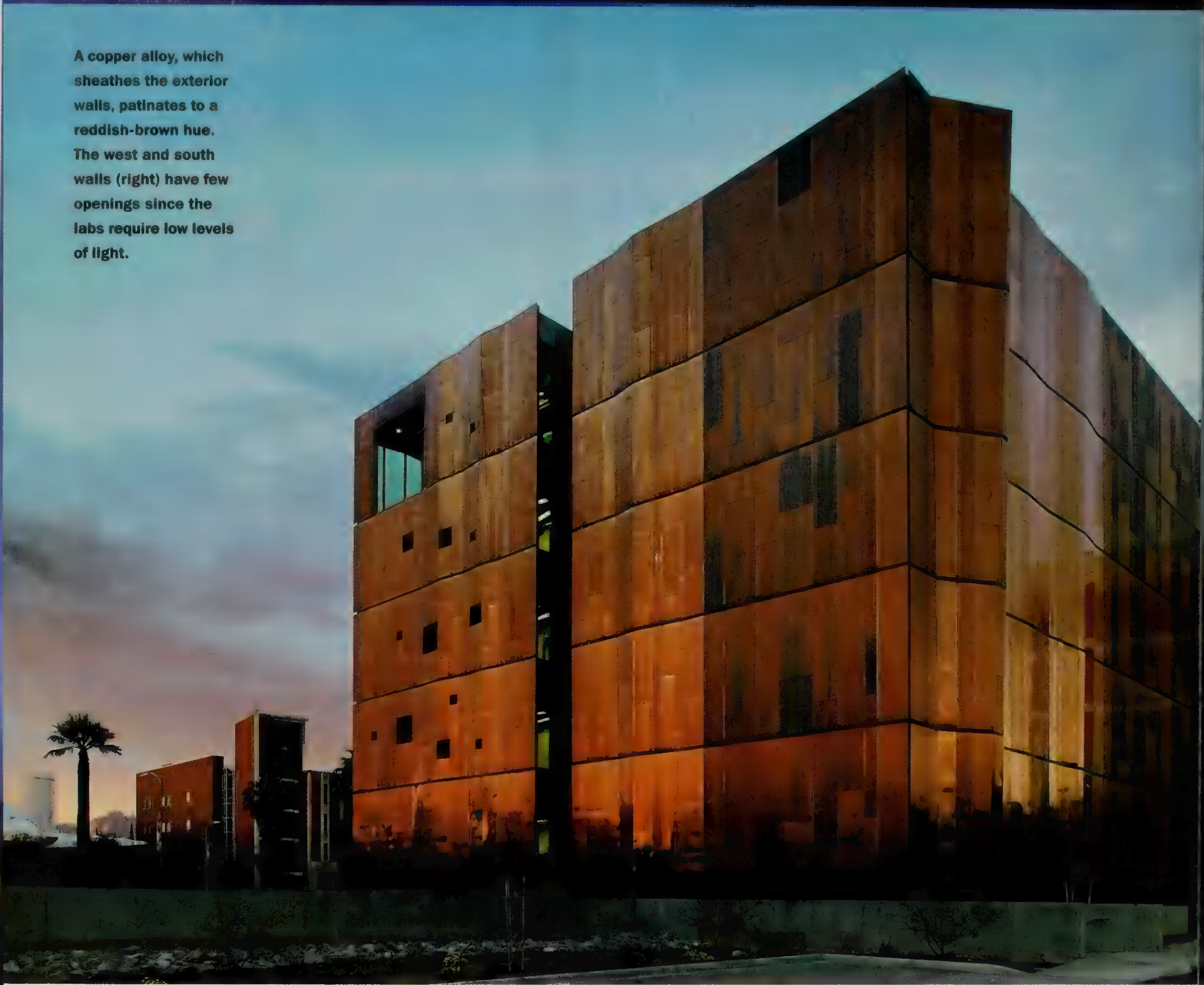
General contractor: *Lloyd Construction*



The lab building (above), depressed slightly below grade, features an outdoor sitting area at the glazed base of the gleaming copper cube.

1. *Meinel Optical Sciences Expansion*
2. *Existing building*
3. *Pedestrian bridge*
4. *Bosque*
5. *Mall*
6. *Parking*





A copper alloy, which sheathes the exterior walls, patinates to a reddish-brown hue. The west and south walls (right) have few openings since the labs require low levels of light.

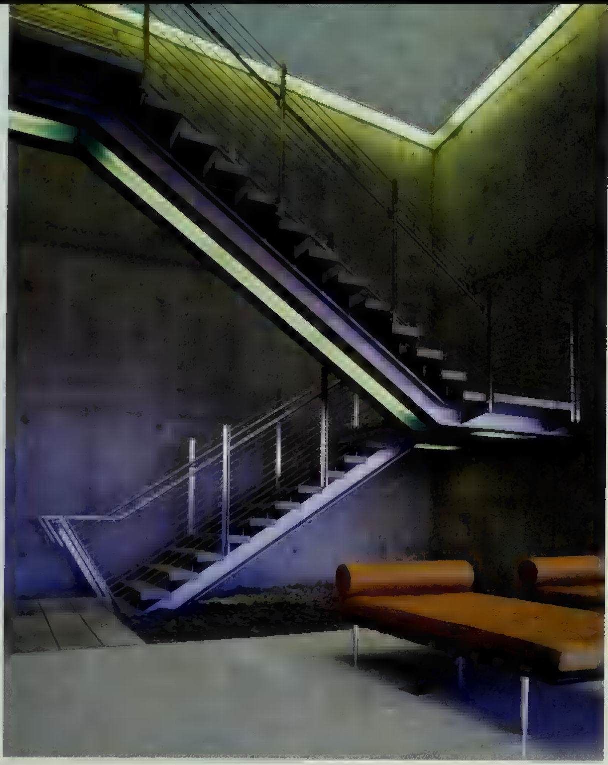
and biologists would collaborate on research in geometrical, physical, quantum, and mathematical optics. Most labs required low to almost nonexistent light levels with no vibrations, and the floors needed to align with those of the building on the east—a reason why Richärd and Bauer depressed the building 7 feet below grade. In addition, the college wanted to provide informal gathering spaces, conference rooms, offices, and a lecture hall, elements not in full supply in the adjacent building.

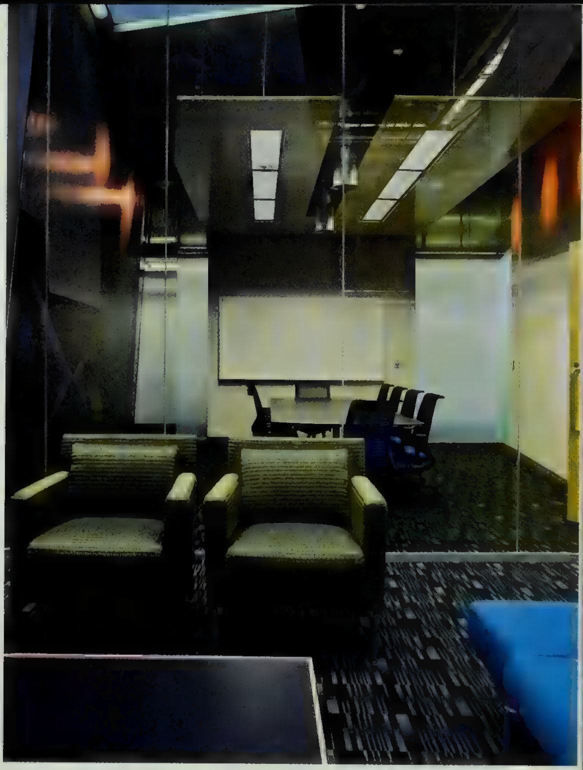
The architects strategically placed the windowless labs behind solid walls facing west and south, where heat loads can be punitively high in the warm months. The walls, clad in a copper alloy that turns a reddish bronze as it patinates, conform in color to the redbrick buildings blanketing the campus. Since the shimmering skin stands at a remove from the inner core of poured-in-place concrete, heat from the sun rises behind the walls to the roof. This crisp outer carapace also acts as a rain screen, owing to the fact that rainwater leaders and lab exhaust can be tucke into the interstitial space, reducing the presence of surface joints.

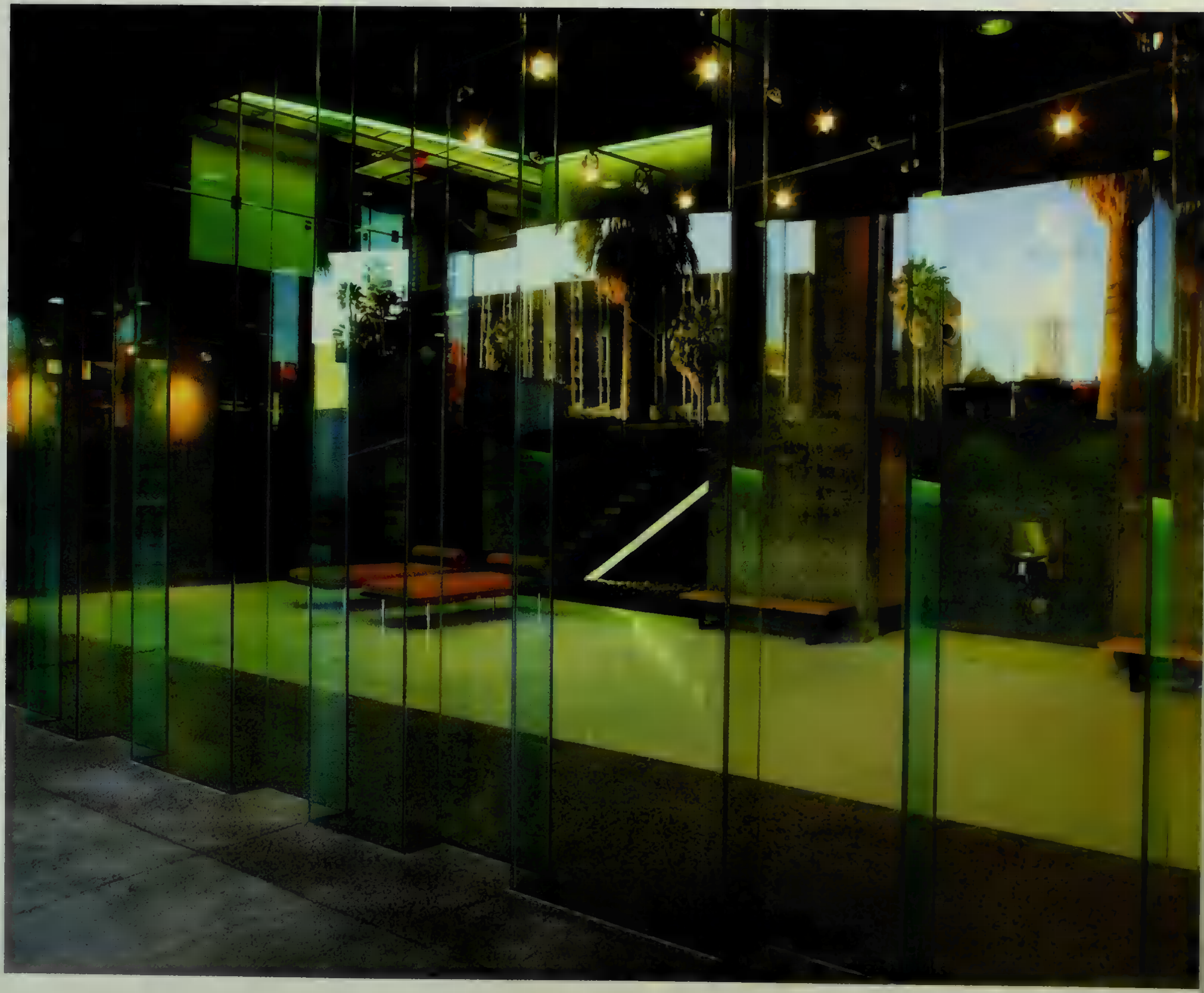
THE FRESNEL LENS AND CAMERA OBSCURA WERE SOURCES OF INSPIRATION FOR A BUILDING DEVOTED TO OPTICAL SCIENCES.

With regard to the particular needs of the labs, the architec installed a low-velocity laminar system to bring in outside air on a distr bution path that hugs the perimeter spaces. Because optical-scien experiments and research demand very stable work surfaces, the arch tects tied the edges of the concrete floor plates together to create structural lattice that would help prevent vibrations.

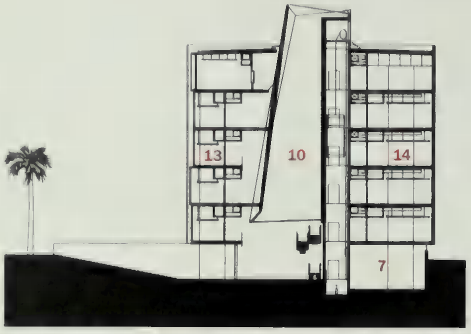
Arranging the labs along the perimeter of the building pr sented a problem with the central spaces, however, where the colle hoped to encourage students and professors to interact casually near tl labs; these inner areas would look a bit gloomy without daylight. T brighten things up, the architects came up with the idea of light well Since fire codes demanded that the light wells could open on no mo than two vertically connecting floors, Richärd and Bauer ingenious decided to gang three shafts together: The main light well begins at tl ground-floor lobby, known as Level 3, and connects to Level 4. Whi the skylit shaft is walled-in for the floors above, its hand-notched plast finish creates a spectacularly luminous element visible from the lobby.





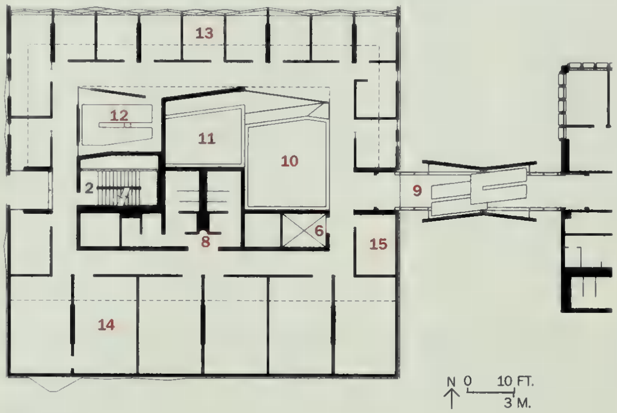


he admittance of light
/as an important fac-
or in the public spaces
f the lab building. It
ours into the lobby
om the light well
bove the stair (top
ft), enters the rest
f the lobby through
lass panels and
ullions (right), and
luminates the sitting
rea (top right).

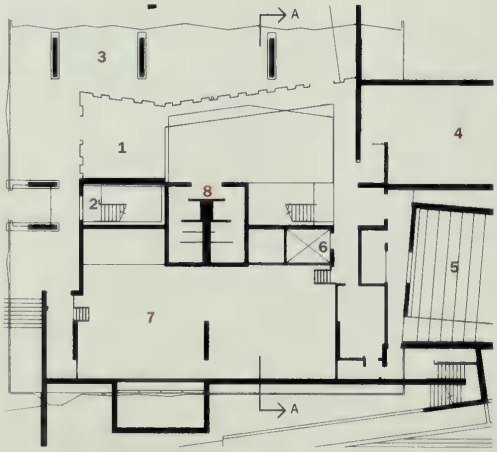


SECTION A-A

1. *Lobby*
2. *Light well with fire stair*
3. *Plaza/entrance*
4. *Classroom*
5. *Lecture hall*
6. *Elevator*
7. *Mechanical room*
8. *Restroom*
9. *Bridge to existing building*

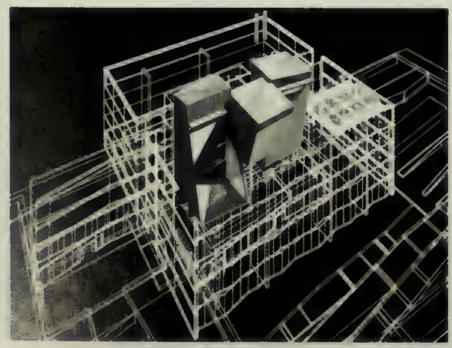


UPPER LEVEL

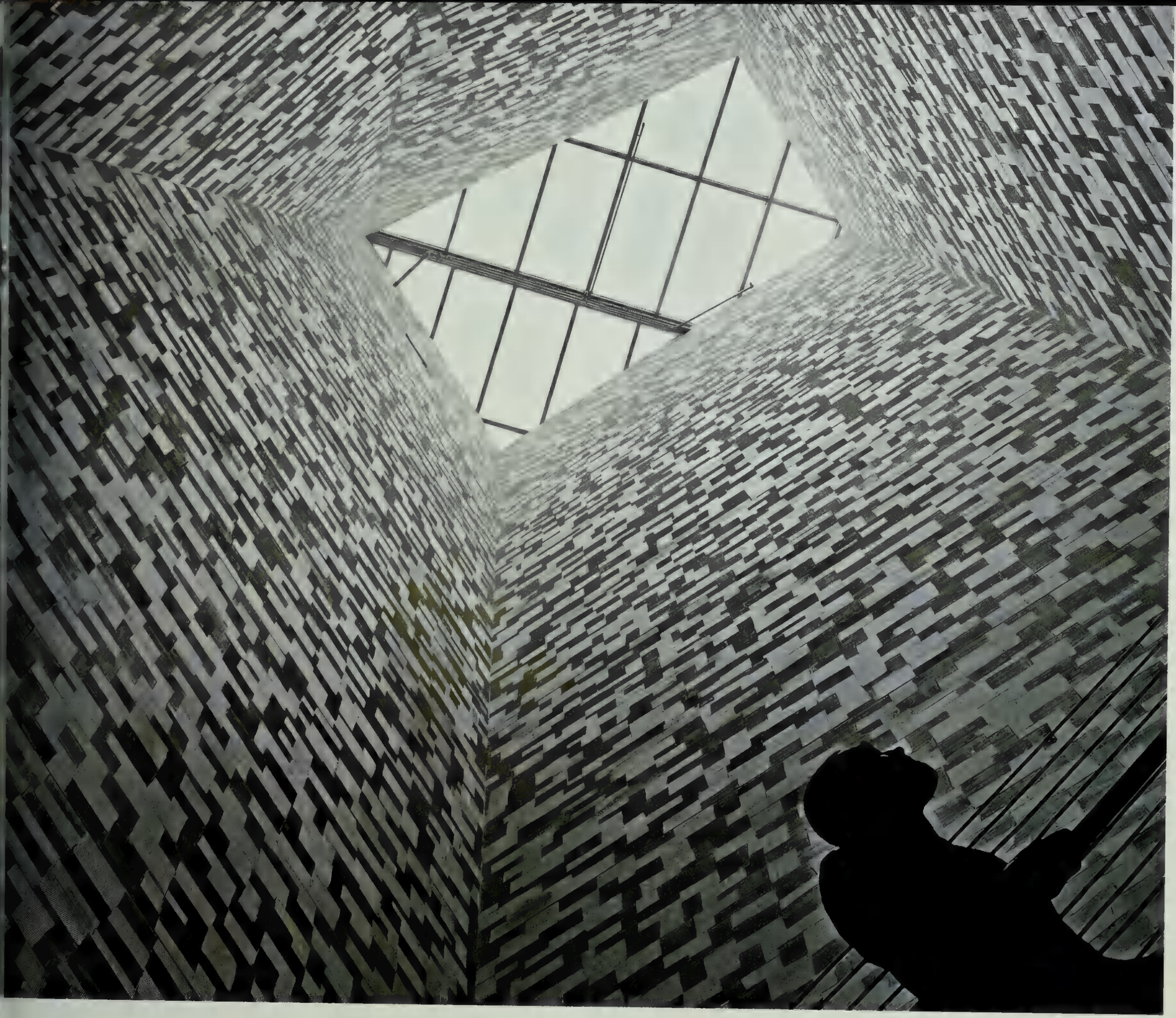


ENTRY LEVEL

10. *Light well*
11. *Open to below*
12. *Conference room*
13. *Offices*
14. *Labs*
15. *Electronic/data*



The wire-frame drawing (left) indicates placement of the three light wells. An enclosed terrace on the northwest corner of the building (above right) provides views of the Santa Cantalina mountains. The walls of the 75-seat lecture hall (right) are sheathed in foamed aluminum panels.



The main light well is open from the lobby to one level above, then enclosed to the skylight. The hand-notched plaster finish (above) adds luminosity.

econd light well extends from what is called Level 5 to Level 6 before ecoming an enclosed shaft puncturing the roof. The third light well is tally enclosed; a fire stair winds through its skylit core, also finished in and-notched plaster. The effect is mesmerizing.

The architects grouped the college's offices and conference oms along the north side of the structure, where a glass curtain wall ith a folded profile offers views of the mountains beyond the campus. he glass appears opaque by day and transparent by night, a notion spired, Richärd says, by the Fresnel lens, the prismatic device invented 1822 to reflect beams of light from gas and oil lamps in coastal light-ouses to seafaring vessels.

Other optical inventions besides the Fresnel lens offered urces of inspiration. In particular, Richärd says the light wells evoke the mera obscura, the 17th-century perceptual device where a room-size ox is punctured by a small hole admitting light, which in turn allows an nage outside to be projected upside down on an interior wall. "We anted light entering from the top to alter what you see," Richärd says.

These abstracted allusions to historic optical devices as well as the ploration of formal themes relating to the play of dark and light, mass and void, and reflectivity and transparency heighten the architectural experience of the lab building. Although many of the materials and finishes are quite basic throughout the structure, the general level of craft and the interior furnishings installed by Bauer enhance its understated unity, making it all the more surprising that the finished building would come to no more than $18 million in overall cost. To the credit of the university, it selected a contractor who assured quality of construction, not just the lowest bid. Carr observes that other factors helped: "Labs were electronic and not hood-intensive," she notes, and the college began construction before the huge price increases of 2003. Ultimately, the firm's investigation of light, mass, and materials in its aspiration to create a lab building worthy of paradigmatic precedents like the Salk provided the university with a structure that is gaining recognition and awards (see page 130). Indeed, it boldly affirms the notion that school buildings can still attain an unusual level of architectural accomplishment. ■

Sources, see page 208. To rate this project, go to ***architecturalrecord.com/projects/***.

SOURCES/RESOURCES PROJECTS

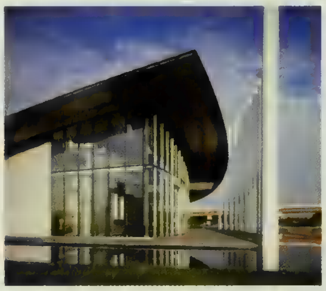
CHESAPEAKE BOATHOUSE

Oklahoma City, Oklahoma

(page 180)

Sources

Structural system: *Alliance Steel*
Curtain wall: *Kawneer (glass); Extech Exterior Technologies (polycarbonate)*
Roofing: *Alliance*
Windows: *Kawneer*
Glazing: *Extech (exterior polycarbonate); Polygal (interior polycarbonate); Kawneer (glass)*



Doors: *Kawneer*
Hardware: *Hager (locksets, hinges); Yale (locksets, closers); Peripheral Systems (security devices)*
Interior finishes: *Formica (plastic laminate); Dal-Tile (shower tile)*
Cabinets and custom woodwork: *Woodcrafters*
Paints and stains: *Sherwin Williams*
Special surfacing: *Keys Stainless, Woodcrafters (stainless counters)*
Carpet: *Daltonian*
Furnishings: *Umbra (chairs); Vecta (tables); Mayline (pedestals); Herman Miller (task chair); Kartell (stools, restroom storage)*
Lighting: *Lithonia (fixtures, task, exterior); Parmate (downlights); Lancet, Hydrell, Paramount, Sportlight (fixtures)*
Bathroom fixtures: *Hewi (accessories); Symmons (showers); Kohler (lavatory); Toto (toilets, urinals); Moen (faucets)*
Kitchen fixtures: *Whirlpool (appliances); Elkay (sinks, drinking fountains); Moen (faucets)*
Boat racks: *Focus Rack Systems*
Boat docks: *Zeiss Manufacturing; Connect a Dock*
Boat stage wall: *Dalmarc Signs*

SUZHOU MUSEUM

Suzhou, People's Republic of China

(page 186)

Sources

Exterior cladding: *Owens Corning*
Doors: *Kaba*
Acoustical plaster ceilings: *STO*
Lighting: *ERCO (interior ambient, downlights, task); William Artists International (interior ambient, exterior); Bega (exterior); Dynalite (controls)*
Conveyance: *OTIS*
Plumbing: *Toto; Sloan*

CASA DAS MUDAS CENTRO DAS ARTES

Madeira, Portugal

(page 192)

Sources

Exterior cladding: *José Damaso & Filhas LDA*
Windows: *GEZE (steel); Vitrosca (aluminum)*
Glazing: *St. Gobain*
Doors: *GEZE (entrances); Tecompart (fire-control, security grilles)*

Hardware: *Maury Ann (hinges); FSB (pulls)*
Acousitical ceilings: *KNAUF*
Furnishings: *Vitra (office furniture, chairs, tables)*
Conveyance: *Schindler*
Bathroom fixtures: *Catalano (toilets); Hans Grohe (tubs, jacuzzis)*

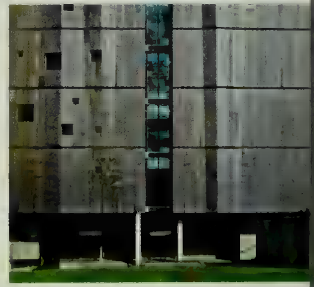
MEINEL OPTICAL SCIENCES EXPANSION

University of Arizona, Tuscon

(page 202)

Sources

Structural system: *CECO Concrete Construction (concrete); Peck Steel (steel)*
Exterior cladding: *Young Block Company (masonry); Elward Construction (copper cladding)*
Roofing: *W.R. Grace & Co.*
Windows: *Southwest Aluminum Systems (curtain wall)*
Glazing: *Northwestern Industries (glass, skylights); Old Castle (glass); Southwest Aluminum Systems (skylights)*
Doors: *Southwest Aluminum Systems (entrances); Three G Industries (metal); Algoma (wood)*
Hardware: *Schlage (locksets); IVES (hinges); LCN, Rixson (closers); Blumcraft, Von Duprin (exit devices) Trimco (pulls); Blum (cabinet hinges Ferum (cabinet pulls)*
Interior finishes: *Armstrong (acoustical ceilings, suspension grid) Cymat (foamed aluminum); Eagle One Millworks (cabinets and custom woodwork, paneling); Wilsonart International (plastic laminate)*
Flooring: *Advanced Terrazzo (terrazzo Facings of America (tile); Manningto Commercial (resilient); Mohawk Industries (carpet)*
Furnishings: *Steelecase (office furniture, chairs); Gordon International, Peter Pepper (reception); ICF (reception, chairs); American Seating Company (lecture hall seating); Brayton International (chairs, tables, upholstery); Carnegie Fabrics (upholstery)*
Lighting: *Zumtobel (interior ambient Lithonia (track, striplights, downlights, task); LC+D Lighting Controls, Lutro*



(controls)
Conveyance: *ThyssenKrupp*
Plumbing: *Halsey Taylor (drinking fountains); Kohler (water closets); Chicago Faucet Company (faucets)*
Cleanroom: *Environmental Enclosures*

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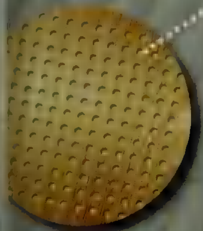

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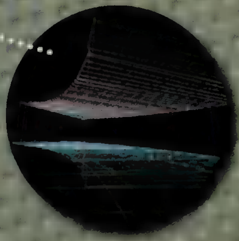
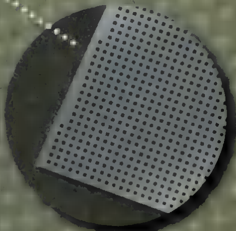
Curtis W. Cassel, TR,i Architects
Sam Fentress Photography



Panels are individually sized to create a splayed and sloped ceiling and are up to 42" x 76.25" to fit scale of space.



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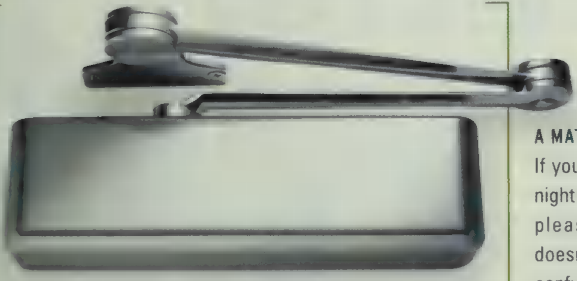

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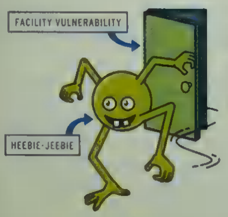

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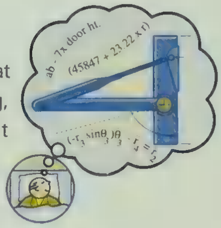

If you ever catch yourself lying awake at night pondering the security of a building, please remember this equation. If it doesn't put you to sleep through sheer confusion, it will lull you into dreamland with its amazing ability to close a door perfectly *every single time*. It's the basis behind the precision of LCN closers, and a modest example of the intense engineering that goes into each of our products. Sweet dreams.

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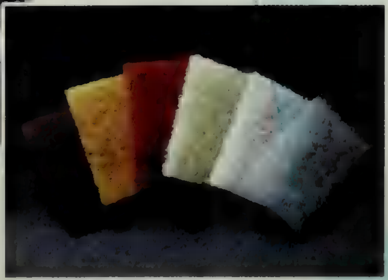

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Being Neighborly

A new generation of downtown apartment buildings is using high design to regenerate once dicey areas and turn them into vibrant neighborhoods.

165 CHARLES STREET

New York City

Richard Meier's 16-story residential tower rising above the Hudson River was conceived to continue the crystalline form and urban character of his two buildings nearby.

MUSEUM RESIDENCES

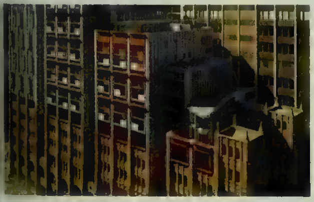
Denver

With this mixed-use project across from the Denver Art Museum, Studio Daniel Libeskind and Davis Partnership Architects take the museum experience to another level.

156 WEST SUPERIOR

Chicago

Miller/Hull's mid-rise residential tower sits on a narrow lot in the revitalized River North district of Chicago, paying tribute to its larger iconic neighbor, the John Hancock Center.



PORTICO SCOTS CHURCH REDEVELOPMENT

Sydney, Australia

Tonkin Zulaikha Greer's residential development sits atop an abandoned church and references its neo-Gothic massing in uniquely modern ways.

o rate these projects and for additional information on multifamily housing projects, o to Building Types Study at ***architecturalrecord.com/bts/***.

By Jane F. Kolleeny

Jane Jacobs's famous statement that "a city cannot be a work of art" cautions us not to treat cities as aesthetic objects. Yet, within the multitude of elements contributing to the living organism of a city, artful forms can populate the urban landscape, enlivening it socially, economically, and aesthetically. With regard to cities, art might best be described as a measured and inspired response to the mixed variables that contribute to promoting a rich community life—an environmental response to a social and economic ecosystem.

In its own way, each of the projects featured here elevates the community life of the city it inhabits. Richard Meier and Partners' 165 Charles Street struts its stuff in a way that only New York architecture can. Rising in companionship with its fraternal twins down the block, this 16-story glass house adds glam and urbanity to the newly hip Meatpacking District it borders.

Miller/Hull Partnership's glass tower at 156 West Superior in Chicago also refers to its neighbor, in this case the X-braced, 100-story John Hancock Center. This nine-story little brother reflects its 1969 sibling's facade design, including a fresh take on structural bracing, while at the same time harmonizing with a block of unmatched buildings ranging from weathered brick low-rises to a new condo high-rise to an old Howard Johnson's motor court.

Tonkin Zulaikha Greer Architects' 146-unit apartment building, the Portico Scots Church Redevelopment, vertically extends an existing five-story church in downtown Sydney, Australia. The design adds modern detailing to the original neo-Gothic form of the structure. While the residences rise above noise and air pollution from a nearby railway and highway, they capture views of, and gain serenity from, the adjacent Wynyard Park.

Finally, Studio Daniel Libeskind/Davis Partnership's Museum Residences, a mixed-use development that invigorates downtown Denver, exists both as an extension of the architects' museum across the street and a sculptural form in its own right. It also serves many practical functions—hiding parking for the museum, promoting street life, and connecting the cultural and political districts of the Downtown Civic Center Park to bordering residential areas.

Each of these projects shows how residential design can contribute to and feed off the cultural life of cities. As people move back downtown, architects designing multifamily housing are helping to shape new urban communities and neighborhoods. ■

One: 165 CHARLES STREET

New York City

Richard Meier & Partners sets a third crystalline tower beside its earlie duo along Manhattan's stylish downtown riverfront.

By Sarah Amelar

Architect: *Richard Meier & Partners Architects—Richard Meier, FAIA, managing partner; Bernhard Karpf, AIA, associate partner; Don Cox, AIA, senior designer; Carlos Tan, Kevin Lee, project managers; Clay Collier, Gil Evan-Tsur, Milton Lam, Michael O'Boyle, Aaran Vaden-Youmans, Hyunjoon Yoo, team*
Owner: *Alexico Management Group*
Engineers: *Arup (structural); Ambrosino DePinto & Schmeider (mechanical, electrical)*
Consultants: *Zion Breen & Richardson (landscape); Fisher Marantz Stone (lighting); Shen Milsom Wilke (acoustic)*
General contractor: *Bovis Lend Lease*

Size: *96,109 square feet*
Cost: *$100 million*
Completion date: *June 2006*

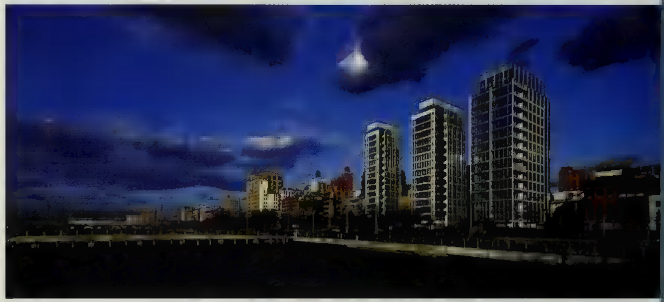
Sources
Cast-in-place concrete: *Pinnacle Industries II*
Roofing: *American Hydrotech*
Glass: *Viracon*
Doors: *Enclos; LIF Industries; Peterson Geller Spurge; Blumcraft of Pittsburgh*
Hardware: *FSB; Dorma; Watermark*
Lighting: *Legion; Starfire; Lightworks; Edison Price; Fineline; Nippo; Alkco; Bega; Leviton*
Elevator: *Thyssen Krupp*

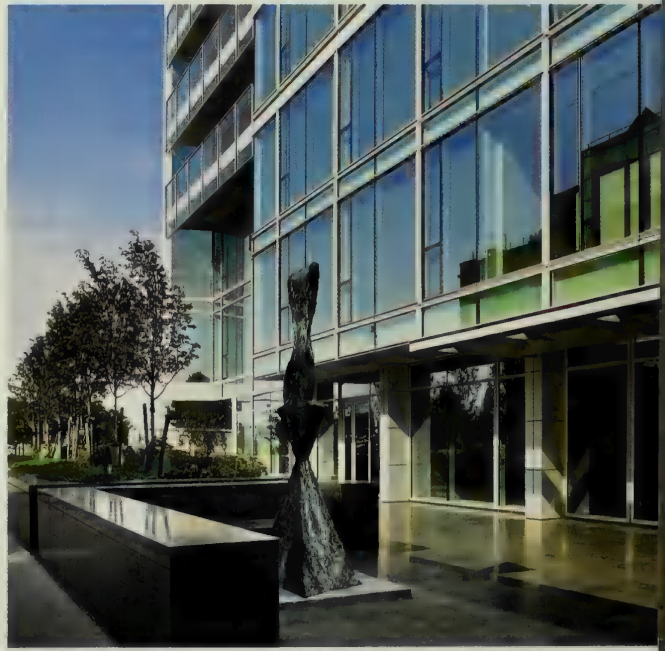
To rate this project and for additional information, go to Building Types Study at architecturalrecord.com/bts/.

The cachet of the designer label has taken Lower Manhattan not by the collar, but by the cornice. Since the turn of the millennium, famous architects—including Herzog & de Meuron, Charles Gwathmey, Annabelle Seldorf, Winka Dubbeldam, Jean Nouvel, Richard Gluckman, and Bernard Tschumi—have been placing their signatures on glassy, new Modernist apartment buildings in New York City.

In the final decades of the 20th century, most new residential construction in this metropolis was architecturally bland and more or less anonymous. Very few of the world-renowned architects based here were actually building anything in their own city, least of all apartment towers. But an overblown real estate market, combined with architecture's growing allure for the general public—especially for a stylish high-end clientele—has fueled the demand for celebrity-designed residential projects. And while brick- or stone-clad apartment structures have long been the norm in New York City, many recent buildings for the rich and hip have featured variations on the curtain wall, rapidly making glass the luxury material of choice.

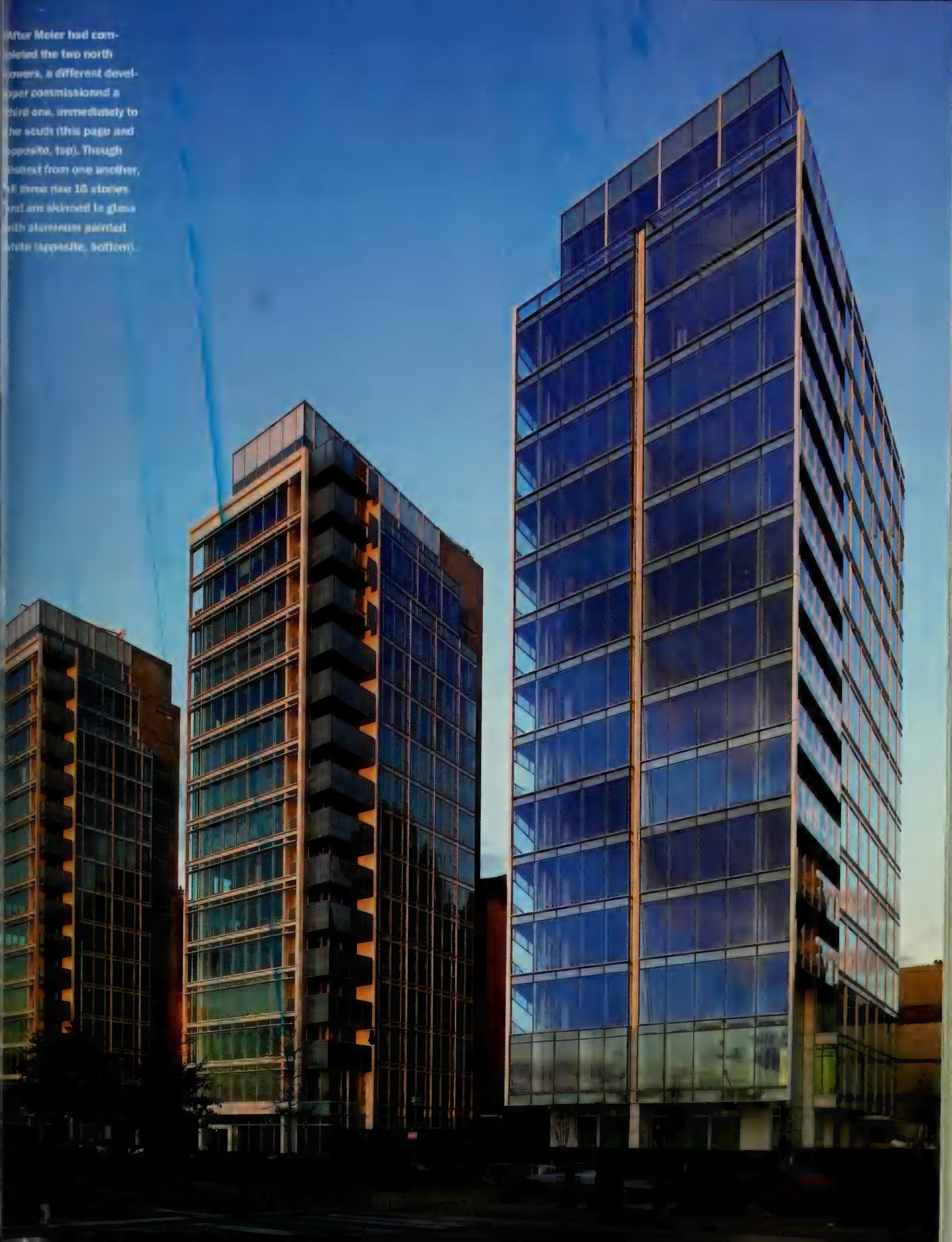
One of the first architects in this new wave was Richard Meier, FAIA, with his twin apartment towers, 173/176 Perry Street [RECORD, June 2000, page 42], completed along Manhattan's downtown Hudson River waterfront in 2002. Soon after, another developer, Alexico Management Group, approached him to create a third tower—a potential fraternal triplet—at 165 Charles Street, just to the south of the original pair.



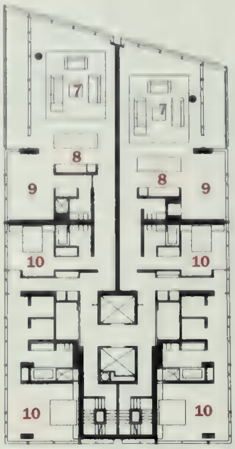


Program

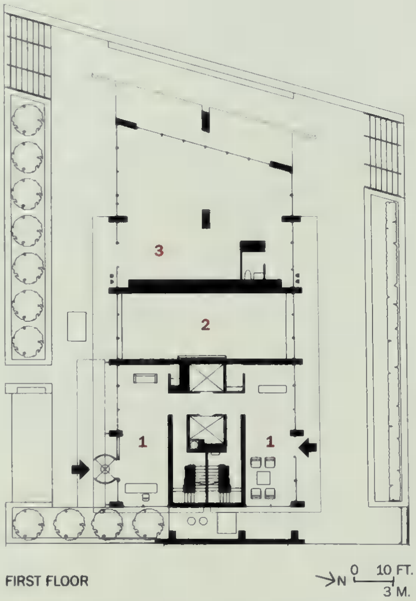
Given the parameters of the zonin envelope and the opportunity to for a compatible trio, the architect mad the Charles Street tower 16 storie tall, rising the same height as its Per



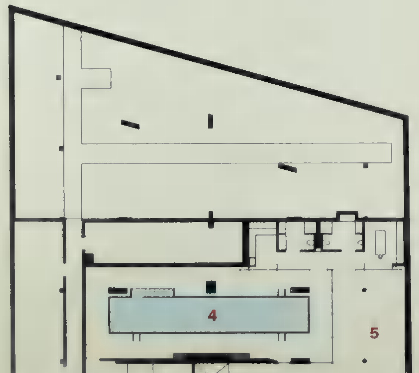
After Meier had completed the two north towers, a different developer commissioned a third one, immediately to the south (this page and opposite, top). Though distinct from one another, all three rise 16 stories and are skinned in glass with aluminum painted white (opposite, bottom).



FOURTH FLOOR



FIRST FLOOR



CELLAR FLOOR

1. *Lobby*
2. *Open to below*
3. *Retail*
4. *Pool*
5. *Gym*
6. *Screening room*
7. *Living*
8. *Kitchen*
9. *Dining (convertible to bedroom)*
10. *Bedroom*

Street neighbors. While the two earlier buildings offer no more than one apartment per floor, 165 Charles houses two on most floors, with a total of 31 units: eight two-bedrooms (convertible to three), four studios, a duplex penthouse, and four one-bedroom units, two with double-height living rooms. The program also includes an 975-square-foot lobby, 1,670 square feet of retail space, a 650-square-foot gym, a 50-foot lap pool, a 35-seat screening room, a wine cellar (with individual temperature-controlled cabinets), and basement storage cages.

Solution

Learning from the first round—which burdened the Perry Street buildings with construction delays, roof leaks, and other glitches—Meier and Alexico agreed to dispense with value engineering at 165 Charles, in pursuit of uncompromised quality even at potentially high expense. While the architects had delivered the reportedly $50 million Perry Street towers "shell and core," with raw, loftlike spaces that the buyers could configure and fit out, Meier's team designed all the interiors of the $100 million Charles Street building, down to the fixtures and custom finishes.

From the exterior, this new tower conjures up an undeniable sense of déjà-vu—but with subtle aesthetic improvements over its twin predecessors. While all three buildings share similarities in scale, form, and skins of glass with extruded aluminum painted white, 165 Charles appears sleeker, more taut and self-contained. The streamlining here results, in part, from the treatment of balconies: edged in clear glass and inset on a side elevation, in contrast to the translucently enclosed decks projecting from a front corner of each Perry Street tower. Charles Street's prime facade, forming a smooth, vertical, uninterrupted screen, like a huge sheet of glass, is split only down the middle, where a continuous spine separates each floor's paired riverfront units. Integrated tracks carry a motorized window-washing system.

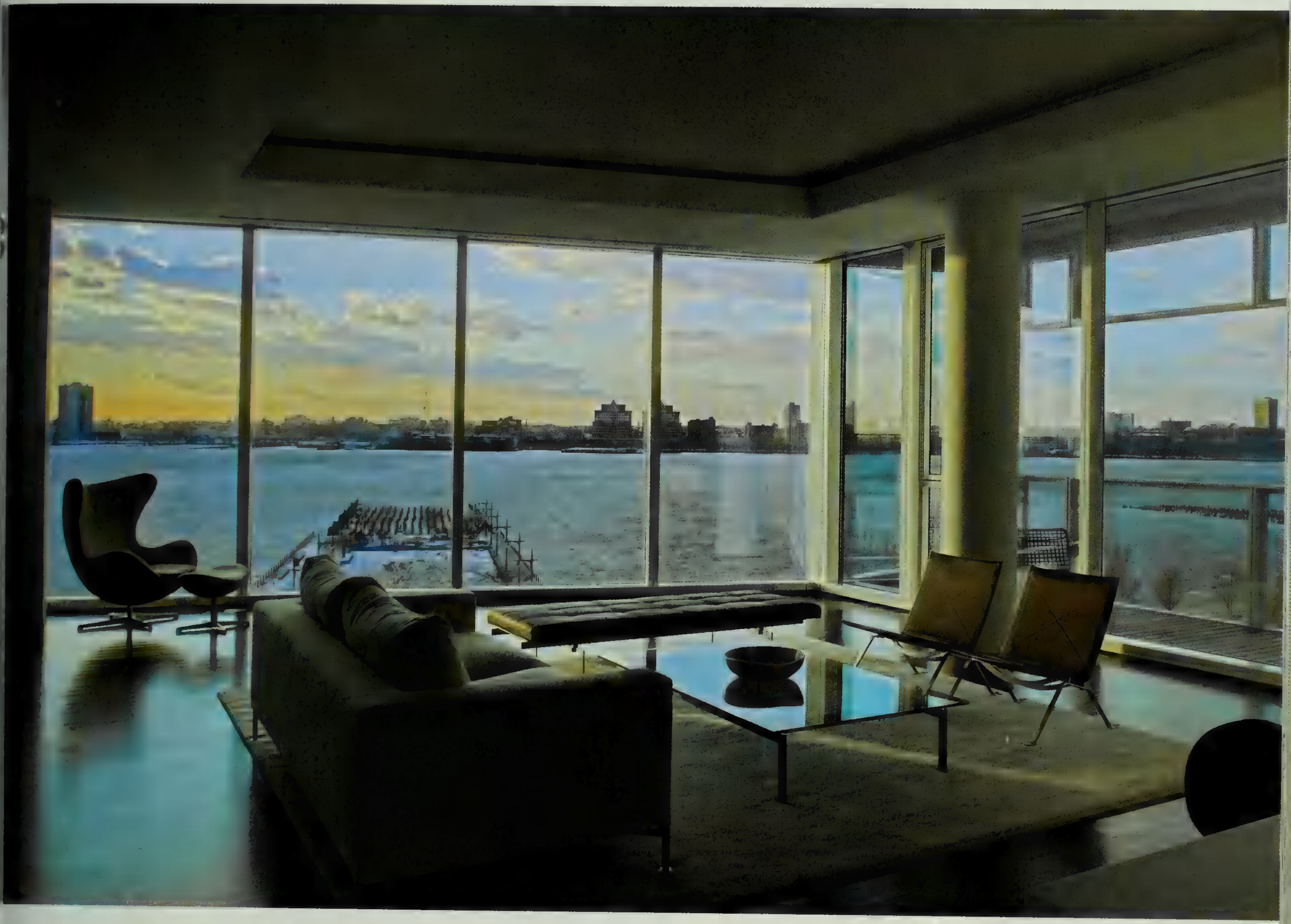
Inside 165 Charles, the units all have 11.6-foot-high ceilings, pure-white kitchens with solid-surface counters, and walls with ¼-inch reveals, hovering above Wenge woo floors. Even the heating and air-conditioning vents appear minimally, as precise incisions set high in the walls or at the bases of the floor-to-ceilin windows. Kitchen islands, in most o the units, allow for free-flowing livin and dining spaces. Everything is clean-lined—including the much-publicized 9-foot-high bathroom doors of translucent glass at $6,500 each—placing the focus on views ou

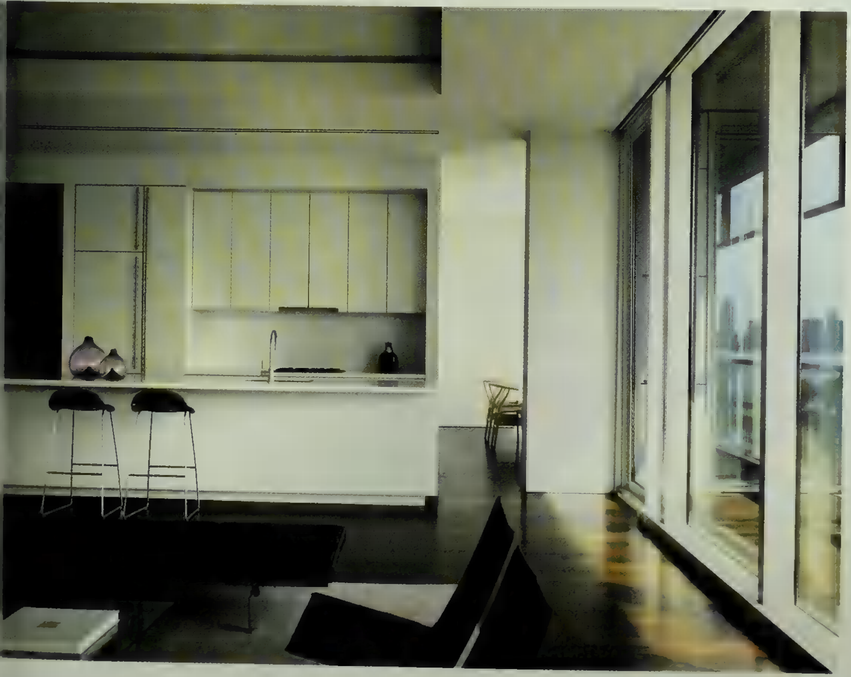
Commentary

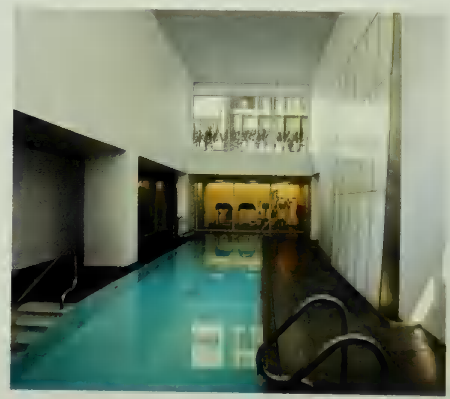
Glass houses, for all their glow and glamour, always come with a laundr list of pros and cons. For example, while opening the interiors to expansive views, the glass can also reveal too much to passersby and let in excessive sunlight. Meier's team addresses some of these challenges with high-energy-rated, UV-filtering glass and, on the interior, electrically controlled sun and blackout shades. Acoustically improved glazing helps mute incoming noise—especially an issue on the lower floors, as a traffic artery comes between the river and this posh real estate (purchased at upwards of $2,500 per square foot).

But the major roadway seems t matter little on this downtown stretc along the Hudson. Once the gritty domain of old brick buildings for light industry, meatpacking, and the occasional seedy nightlife venue, the strip has grown increasingly residential and chic. Quickly becoming a virtual *Who's Who* in architecture, th area will soon showcase at least tw other glass-sheathed, high-design structures: Frank Gehry's nearly complete (nonresidential) IAC building an Nouvel's future apartment tower.

Beyond coveted labels, the influx of celebrity architecture will also, ideally, help elevate the city's ambitions for design, as have Meier's precise and transparent, though hardly experimental, towers. Haute couture is thriving in this town, but the greater feat will be to raise the quality of housing for all income levels, making top architecture widely attainable off-the-rack.







From the higher floors, the major traffic artery tends to drop out of sight, in favor of panoramic river views (top). The pure-white kitchens include an island, around which the living and dining space flows freely. Though the 50-meter lap pool (above) is below grade, daylight reaches it from high windows at both ends. A water wall beside the pool (above) adds to the spa atmosphere.

Two: MUSEUM RESIDENCES
Denver, Colorado

Studio Daniel Libeskind and Davis Partnership Architects wrap a parking garage with apartments and breathe life into a cultural district

By Beth Broome

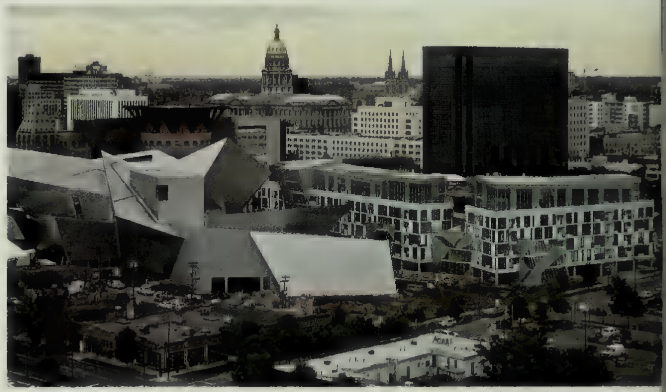
Architect: *Studio Daniel Libeskind with Davis Partnership Architects, a joint venture—Daniel Libeskind, Brit Probst, AIA, partners in charge; Arne Emerson, Stefan Blach, Steven Haave, AIA, project architects; Jim Parker, AIA, Curtis Cox, AIA, Jimmy Schumacher, AIA, Alexander Pearson, Joe Lear, AIA, project team*
Client: *Museum Residences (Corporex Colorado/Mile High Development joint venture)*
Consultants: *J.F. Sato and Associates (civil engineer); Jirsa Hedrick & Associates (structural engineer); AMI Mechanical (design-build mechanical); Milender White Construction Company (general contractor)*

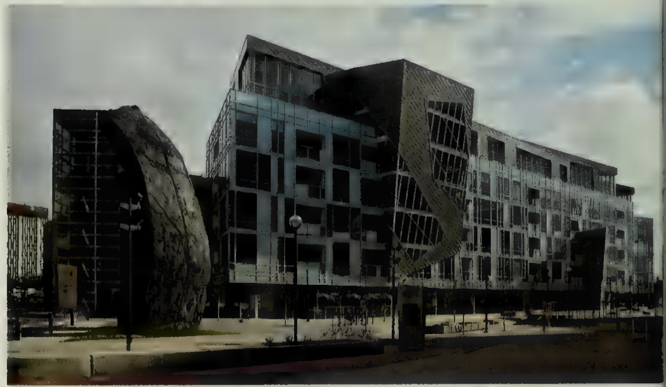
Size: *126,000 square feet*
Cost: *$21 million*
Completion date: *October 2006*

Sources
Exterior cladding: *Rheinzink*
Roofing: *Firestone TPO*
Windows: *Kawneer*
Doors: *Marshfield Door Systems (entry); Jeld-Wen (interior)*
Hardware: *Schlage*
Cabinets: *Berloni*
Paints and stains: *Sherwin-Williams*
Resilient flooring: *Oregon Lumber*
Lighting: *Prescolite; Alkco; Bega*
Plumbing: *TOTO; Kohler; Dornbracht*

To rate this project and for additional information, go to Building Types Study at architecturalrecord.com/bts/.

First there was the museum gift shop, then the café. Soon, signature museum architecture became a must-have. The commodification of the institution seemed complete. But museums have taken the phenomenon a step further with apartment towers, such as Studio Daniel Libeskind and local architect Davis Partnership Architects' Museum Residences, which sits directly across a small plaza from the Denver Art Museum's new Frederic C. Hamilton Building (another Libeskind-Davis Partnership joint venture [RECORD, January 2007, page 84]). These condominiums offer the ultimate amenity: an opportunity to bring—almost literally—the museum right into your home.



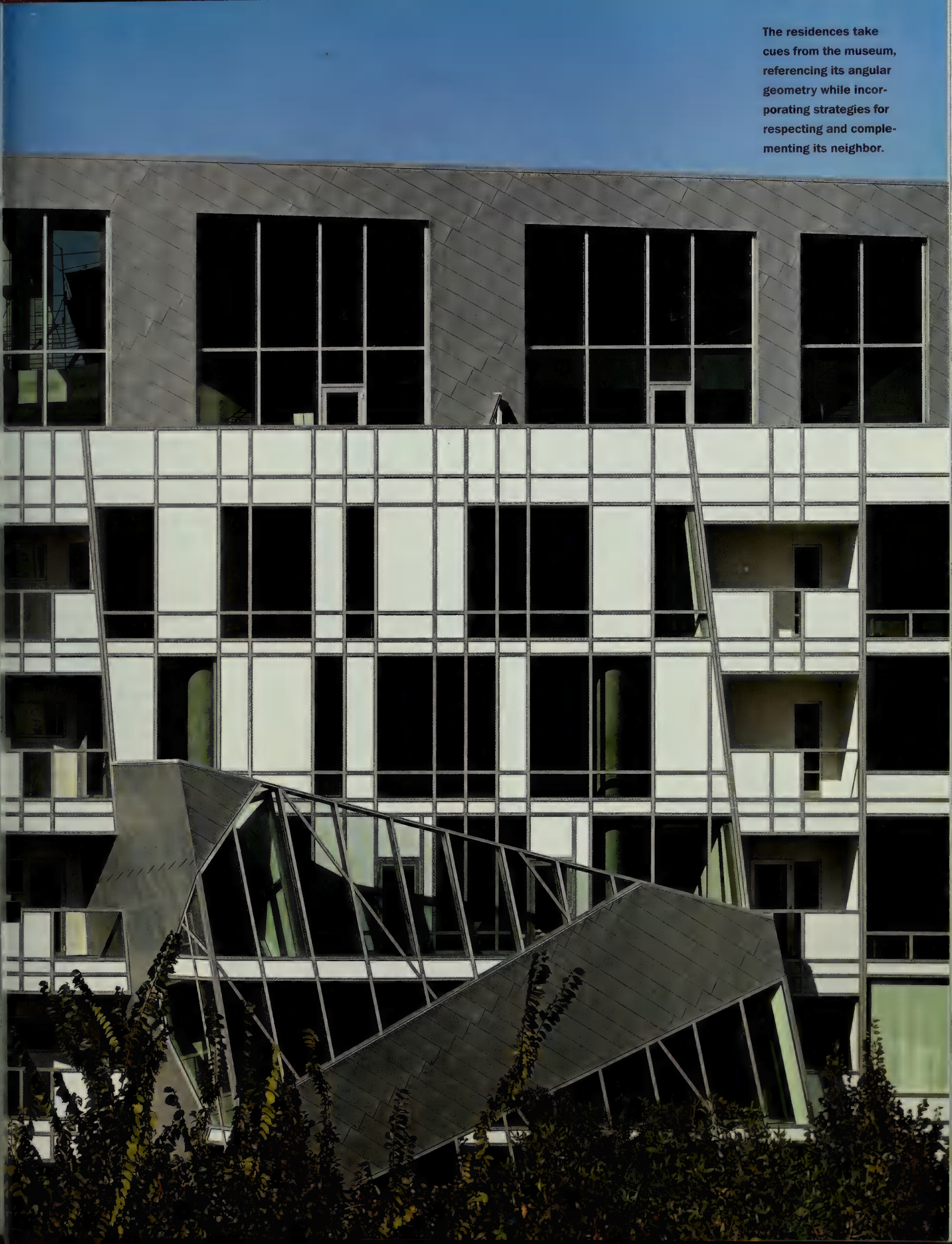


The residences are oriented to maximize views of the museum (top) and create the Acoma Plaza (bottom).

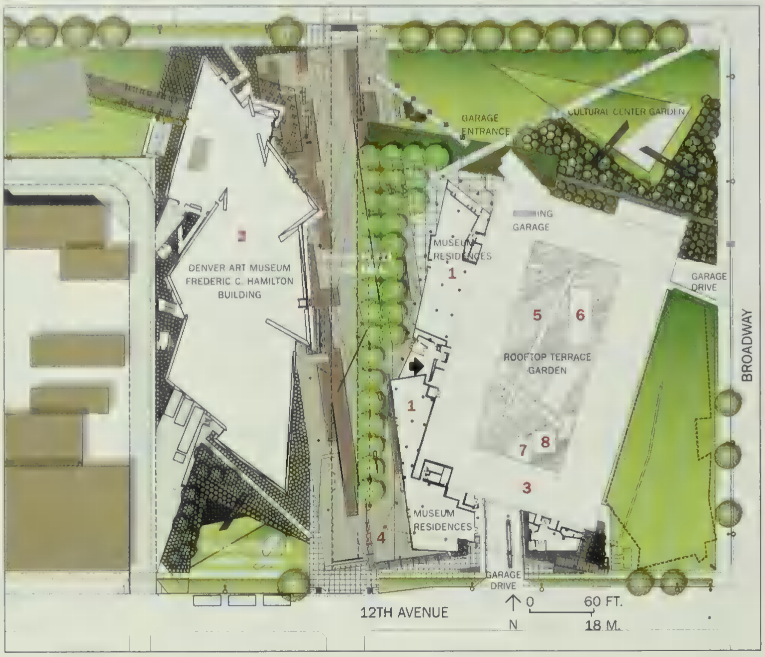
Program

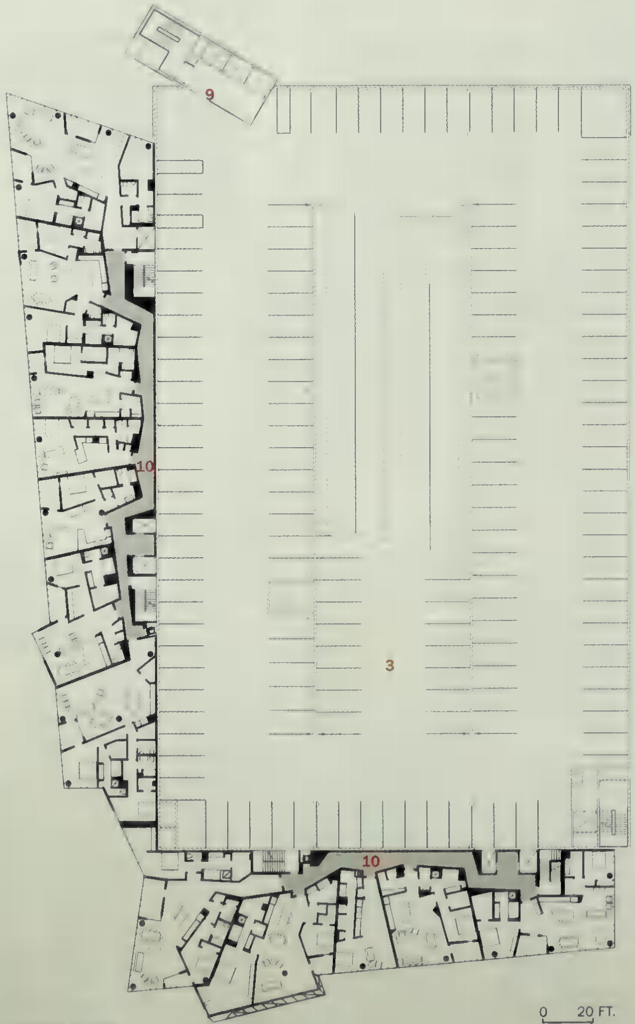
When the Denver Art Museum first announced a competition for its expansion, the RFQ outlined the need for one building: the extension itself. Soon after Studio Daniel Libeskind was hired for the job, the project was ratcheted up with requirements for a parking facility to restore the spaces lost to the expansion and add to them. With budget constraints preventing a major excavation, the architects drew up plans for a five-story above-grade garage. But some people wanted more. For example, the city's director of community planning and development, Jennifer Moulton, had long championed a vision for promoting street life with a mixed-use project that would connect Denver's cultural and political activities downtown to the gentrifying "Golden Triangle" residential neighborhood to the south.

Libeskind and his team quickly demonstrated they shared Moulton's vision. Instead of a freestanding garage, they proposed wrapping two sides of the 1,000-car concrete parking structure with a seven-story residential building anchored by retail space on the ground level. The strategy provided a tidy solution to the problem of concealing the necessary but prosaic structure, while als bringing new residents and activities to the district. "For me, the project was about how to create an urban space activated by the neighbor-



The residences take cues from the museum, referencing its angular geometry while incorporating strategies for respecting and complementing its neighbor.





TYPICAL FLOOR

1. *Museum Residences*
2. *Denver Art Museum, Hamilton Building*
3. *Parking garage*
4. *Acoma Plaza*
5. *Rooftop garden*
6. *Services*
7. *Rooftop caterers' kitchen*
8. *Rooftop restrooms*
9. *Garage entry*
10. *Corridor*
11. *Inset balcony*

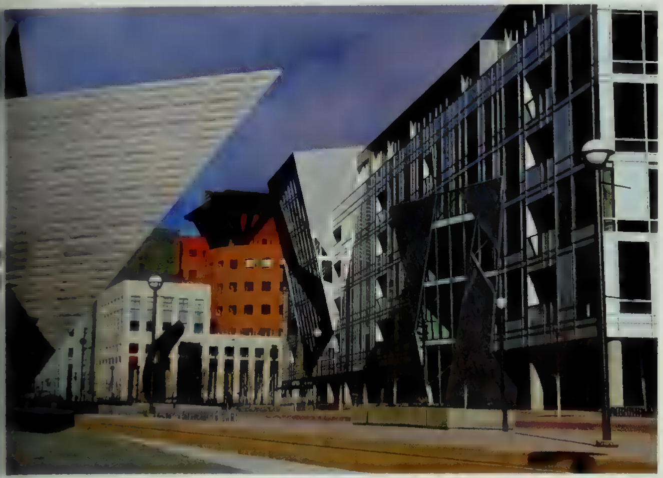
hood," says Libeskind. "The idea was not to create a stand-alone building, but to create life." The mixed-use Museum Residences building and its adjacent Acoma Plaza—along with a forthcoming hotel and residential tower that the architects als added to the master plan—are a testament to this commitment.

Solution

Two rectilinear volumes comprising 126,000 square feet and housing 55 apartments abut both the museum-facing Acoma Avenue side of the garage and the 12th Avenue side, which looks out toward the Rocky Mountains. A curtain wall glazed wit transparent and opaque white panels shrouds the concrete-framed building while a zinc-clad, shardlike volume thrusts like a javelin through the two facades where they meet at the garage's corner. Zinc makes another appearance on one more multistory angular block that projects from the facade, "bowing" as if in deference the museum's adjacent entry.

The curtain wall lends a transparency and lightness to the residences, a respectful gesture to the museum. In yet another move to soften the potentially overbearing impact that a seven-story building might have on its culturally significant neighbor, eight steel-framed, zinc-cla penthouses, also offering views onto the garage's green roof, are stepped back, creating ample terrace space. Nods to the museum are apparent in canted walls and jagged edges popping out of the building's face.

References continue inside, a extreme adherence to an angular parti that runs the risk of leaving residents exposed to catching "thematitis." Floor plans, with few perpendicular lines, mimic the museum's geometry, which, from the Acoma-facing side, is constantly on view, often through shardlike windows. The units themselves are modest in size, ranging from 750-square-foot studios to 2,200-square-foot two bedrooms. Designed by Libeskind and the Davis Partnership down to the cabinetry, the interiors are appointed with the expected luxury fittings and materials, such as Bosch appliances and



**he Acoma Plaza runs between the
nuseum and the residences (above).
partments, some facing the museum
above right), have high-end finishes
nd appliances (middle and bottom).**

osaic tile, commensurate with the
ondominiums' price tags (ranging
om $340,000 to $1.4 million).

ommentary

he Museum Residences are about
oking out. The architects have cre-
ted a viewing platform for admiring
hat they must consider one of their
ost significant built projects to
ate. A testament to this is the fact
at the museum-view units have
old faster than those facing the
ockies—long considered Denver's
oney shot. While some have criti-
ized the residences as riddled with
superficial gestures," the architects
ave established a dialogue between
e apartment building and the
useum. The relationship, points
ut Davis Partnership principal Brit
robst, "is about point and counter-
oint": abundant fenestration versus
rtually no windows at all, an active
kin versus a more quiet wrapping,
esidential scale versus civic monu-
entality. And the architects have
et their goal of breathing life into
n urban center. In addition to
asking a hulking garage and creat-
g an inviting plaza, the residences,
ith their mixed-use functions, have
reat potential for serving as a
ridge to the neighboring residential
rea and keeping the larger cultural
enter buzzing around the clock. ■

Three: 156 WEST SUPERIOR RESIDENCES

Chicago, Illinois

Miller/Hull Architects' light steel-and-glass mid-rise tower showcases an innovative exposed structural system.

By Blair Kamin

Architect: *The Miller/Hull Partnership—David Miller, FAIA, lead designer; Kurt Stolle, AIA, project manager; Brian Court, Doug Mikko, project team*
Architect of record: *Studio Dwell Architects—Mark Peters, AIA*
Client: *Ranquist Development*
Consultants: *Thornton Tomasetti Engineers (structural engineers)*

Size: *22,300 square feet*
Cost: *$6 million*
Completion date: *July 2006*

Sources
Structural system: *Kingery Steel Fabricators*
Exterior cladding: *Peerless Products (metal/glass); Van Poppelen Brothers (masonry); Cerami Construction Company (concrete)*
Roofing: *Sika Sarnafil US*
Doors: *Vitralum Industries (entrances); Star Contractors Supply (metal doors); Stock Building Supply (wood and sliding doors)*
Hardware: *Schlage (locksets); Von Duprin (exits, closers); Arclinea custom (cabinet hardware)*
Interior finishes: *USG Sheetrock (acoustical ceilings and suspension grid)*
Paint: *Benjamin Moore*
Floor and wall tile: *Ann Sacks*

To rate this project and for additional information, go to Building Types Study at **architecturalrecord.com/bts/**.

Chicago's skyline boasts such muscular, structurally expressive towers as the John Hancock Center, the brooding, X-braced giant that is the city's Eiffel Tower. The 100-story Hancock was affectionately called "Big John" after its completion in 1969. Now it has a diminutive sibling, a nine-story condominium building by David Miller, FAIA, and Seattle's Miller/Hull Partnership that might well be called "Little John."

Miller once worked in the Skidmore, Owings & Merrill studio of Bruce Graham, FAIA, the architect of both the Hancock and the even taller Sears Tower. He freely acknowledges his debt to Graham and the Mies-influenced Second Chicago School of Architecture. Yet his building, known by its address of 156 West Superior, puts a fresh spin on this tradition, while offering a model of midblock infill design.

Program

Located in the gentrifying River North area, a few blocks west of Chicago's North Michigan Avenue shopping district, 156 West Superior was initially designed as a seven-story building that would slide just beneath the 80-foot limit where the costly provisions of Chicago's high-rise code kick in. But the developer, Ranquist Development, wound up adding two stories because the economic benefits of the extra floors outweighed the added costs of sprinklers and other code-required features.

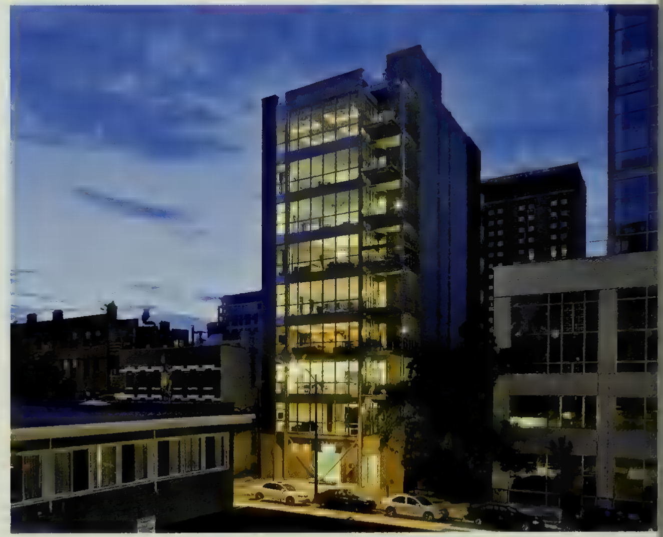
This shift improved the project's proportions, but the brief remained challenging: design a high-end, but not top-drawer, residential mid-rise for less than $200 per square foot. Capturing unobstructed views in three directions, including prime south views of the Loop skyline, was essential to selling the units. And each unit would require its own parking space, a demand that has led developers of larger Chicago residential towers to plop their building atop street-deadening parking-garage podiums.

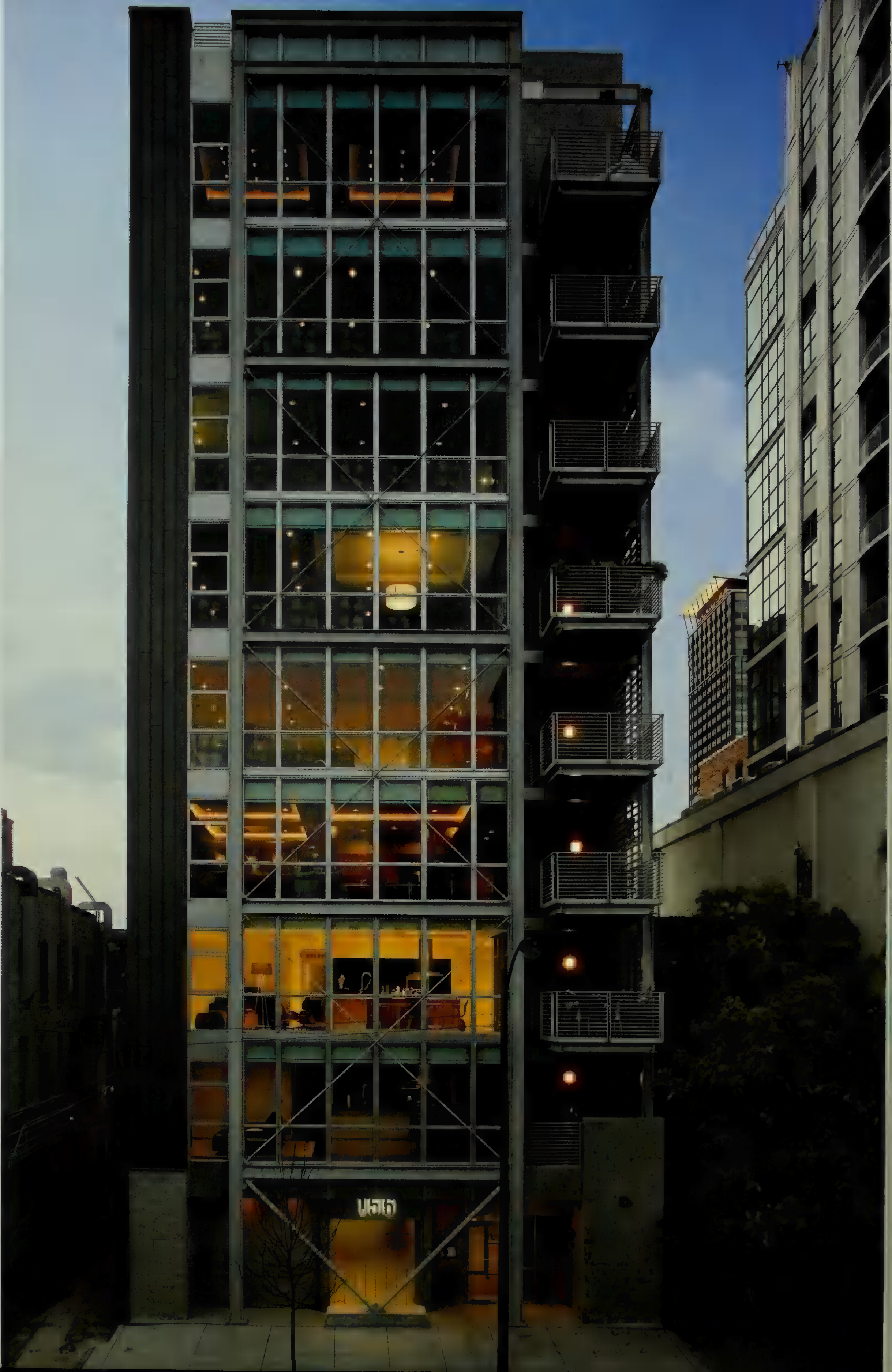
In addition to these internally driven requirements, Miller had to respond to the external needs of architecture and urbanism: first, giving the building a presence that belied its Lilliputian size; second, making it a good neighbor on a mix-and-match block that includes weathered brick low-rises, a new condo high-rise, and an old Howar Johnson's motor court. The 11 condo units and 12 parking spaces were to be shoehorned into a narrow midblock site that measures 44 feet wide by 100 feet deep.

Solution

In keeping with the principles of the Second Chicago School, Miller and the architect of record, Studio Dwell Architect, made structure th essence of their solution, though the approach is loose enough to fit und the rubric of "relaxed rationalism.

Blair Kamin is the Pulitzer Prize–winning architecture critic of the Chicago Tribune.





steel frame structural
ay fully enclosed
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nd identity to the
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hich fits on a narrow
ot in the revitalized
iver North district of
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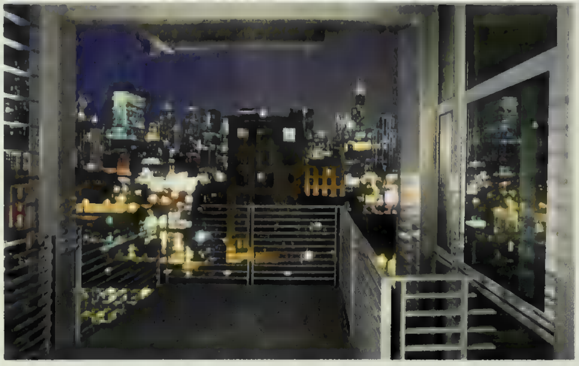
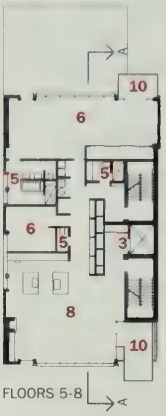
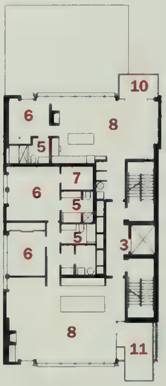


Steel-framed decks, enclosed with stainless-steel railings and louvers for privacy, serve as outdoor living rooms (left). Loftlike spaces with floor-to-ceiling windows are outfitted in sleek contemporary furnishings (below).

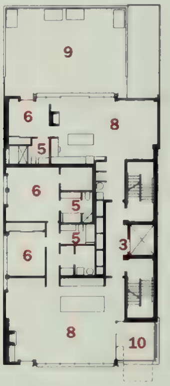


FLOORS 5-8

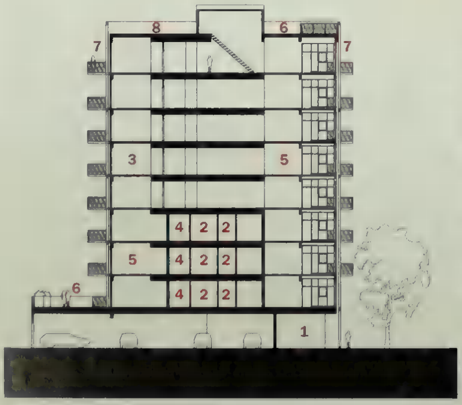
1. *Lobby*
2. *Retail space*
3. *Elevator*
4. *Mechanical/ electrical room*
5. *Bath*
6. *Bedroom*
7. *Walk-in closet*
8. *Living/kitchen/ dining room*
9. *Terrace*
10. *Balcony*
11. *Mechanical area*



FLOORS 3-4

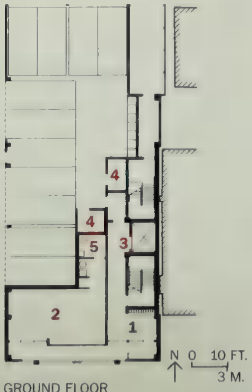


FLOOR 2



SECTION A-A

1. *Retail space*
2. *Bath*
3. *Bedroom*
4. *Walk-in closet*
5. *Living/kitchen/ dining room*
6. *Terrace*
7. *Balcony*
8. *Mechanical area*



GROUND FLOOR

The main facades of the steel-framed building skillfully employ balanced asymmetry. A slablike en wall wrapped in standing-seam ste is matched on the other side by oversize, exquisitely detailed stee balconies. The composition gains added heft from the centrally locate wind-bracing exposed steel columns and diagonal tension rods, which are separate from the principal, weight-bearing structure. The end result satisfies the need for views but with a robust urban presence and a sense of lightness and layerin absent from more prosaic mid-rises

Miller configured the interior with equal deftness. To meet the program's economic demands, the building houses single-story flats, n multistory lofts. The light structure gives these units the feeling of urba tree houses. The 12 parking spaces meanwhile, are accommodated solely at grade, not in a podium.

Commentary

While 156 West Superior uses an existing architectural language, it nonetheless plays with that language in creative ways, wisely tweaking a formal archetype rathe than recklessly pursuing innovatio for its own sake. Far from a slavish imitation of the Hancock Center, it a light gem rather than a dark slugger—sinewy rather than muscular; street-engaging, not scale-shatterin This type does well by the city, though it is not faultless.

The expansion in the number of floors necessitated more at-grac parking, gobbling up space that wa originally to be devoted to street-enlivening shops. In addition, the V-shaped steel tubes that complet the structural frame meet the ground somewhat awkwardly, partially blocking the pedestrian's pat to the front door. But the scale, a least, is right for the street.

This mid-rise offers fresh evidence of the continued vitality of Chicago's legendary tradition of Modernism and serves as an example, at once architecturally striking and urbanistically sensitive, for other cities experiencing their own downtown development booms. ■

Ample deck space for entertaining is available on some floors (above). The open-plan interiors are airy, with abundant natural light flowing through commercial storefront windows (left). Kitchens feature contemporary Italian cabinets (below).

Four: PORTICO SCOTS CHURCH REDEVELOPMENT

Sydney, Australia

Tonkin Zulaikha Greer Architects extends the original Scots Church building upward with urban residences projecting into the sky.

By David Sokol

Architect: *Tonkin Zulaikha Greer Architects—Tim Greer, principal; Paul Rolfe, project architect; Wolfgang Ripberger, Trevor Williams, Georgia Webb, Ruth Leiminer, Yannick Goldsmith, Kon Vourtzoumis, Roger O'Sullivan, Brian Zulaikha, John Chesterman, Angela Rheinlaender, David Jackson, Michael Bennett, Jan Ly, Helen Hughes, Trina Day, Bettina Siegmund, project team*
Client: *Westpoint Corporation*
Consultants: *Van der Meer Bonser (engineers)*
General contractor: *Westpoint Construction*

Size: *204,000 square feet*
Cost: *$48.4 million*
Completion date: *December 2005*

Sources
Structural system: *Condek*
Metal/glass curtain wall: *Permasteelisa*
Metal roofing: *BlueScope Steel*
Aluminum windows, metal and sliding doors: *Permasteelisa; JML*
Hardware and pulls: *Madinoz*
Acoustical ceilings: *CSR Gyprock*
Stains and paints: *Dulux Colours*
Carpet: *Supertuff Carpets*
Lighting: *Regal Lighting*
Elevators: *Thyssen Krupp*
Plumbing fixtures: *Duravit*

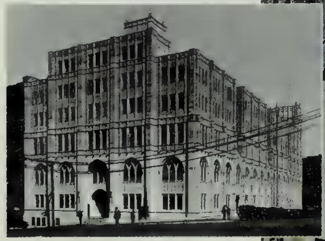
To rate this project and for additional information, go to Building Types Study at **architecturalrecord.com/bts/**.

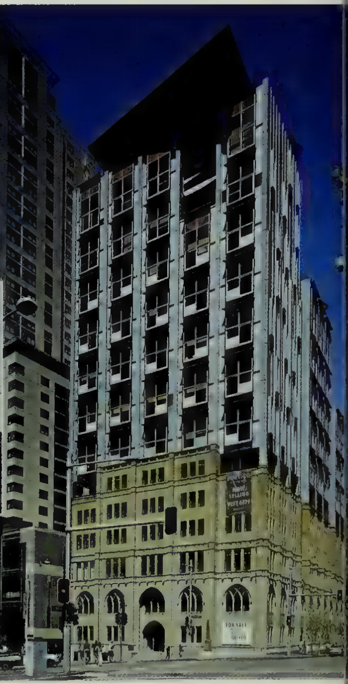
"An exquisite Glenn Murcutt pavilion sitting within a huge landscape is a complete misrepresentation of Australian architecture," says Tim Greer, director of Tonkin Zulaikha Greer Architects (TZG), which is based in the hip Sydney neighborhood of Surry Hills. In fact, more than 95 percent of Australia's 20-million-plus population lives within city limits, and the country is considered to be one of the most urbanized on the planet.

The national tendency to cluster means that architects are commonly asked to design multifamily buildings for urban sites—or transform existing buildings into higher-density uses. Scots Church in downtown Sydney, for example, sat neglected since the 1980s, when the building was sold by the church, except for the 2,500-seat, ground-floor assembly hall where its congregation still meets. By 2005, TZG had completed the conversion of the structure into a 146-unit, cooperative-style apartment building, now called Portico, which combines the neo-Gothic confection of the old building with unapologetically new towers perched on top.

Program

Begun in 1926, construction of Scots Church was capped at five stories during the Great Depression. But its trio of original architects intended the structure to reach 150 feet, and they had engineered the frame accordingly. What seems like a gift for the next generation—enough bracing to support a profitable expansion—actually limited the possibilities of the final form. "The new addition could weigh no more than the intended original," Greer explains, because of Sydney's conservative structural demands.





TZG worked with a host of additional constraints. For example, the building sits directly above the main railway line and overlooks the automobile route to Sydney Harbour Bridge. Noise and air pollution precluded balconies, although they are a popular feature in the city. Moreover, due to Portico's adjacency to Wynyard Park, the designers had to follow a requirement for a 32.5-degree recession plane that would allow sunlight to penetrate the park.

Solution

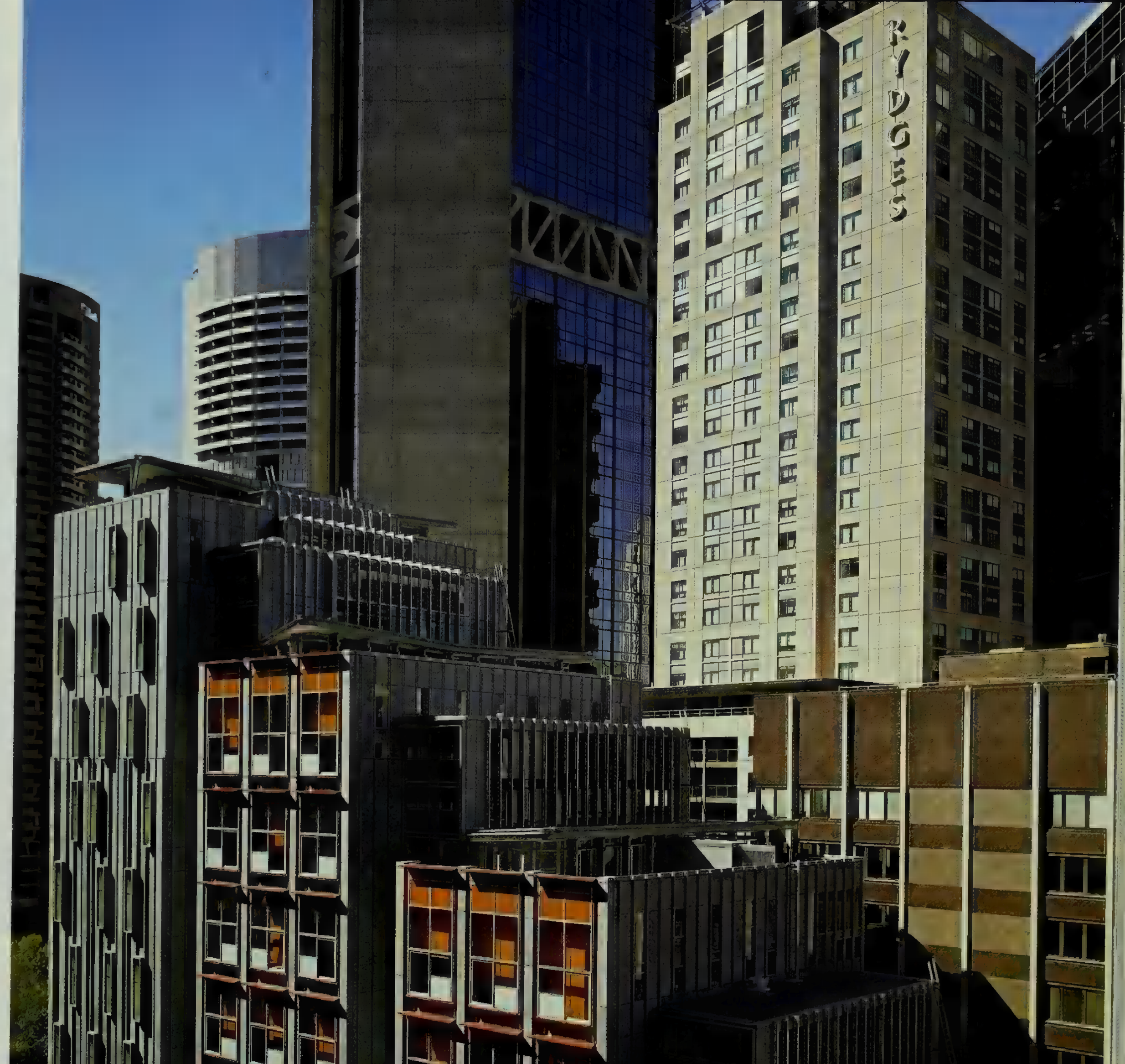
With mezzanines supported by timber rather than steel, and partition walls made of plaster instead of masonry (due to the load constraints), the 1926 base could support the weight of the new structure and its occupants.

Double-height fenestration in the duplex living units complements the tracery and casement windows of the historic church. "We knew intuitively that if we had a two-story-high space, we would get a vertical emphasis to the building," Greer says. "While neo-Gothic buildings are perpendicular, apartment buildings tend to be a horizontal typology."

Scots Church's original design

David Sokol writes regularly for Azure, Interior Design, *and* Metropolis.

While 80 percent of the Scots Church units are duplexes on the new upper floors, offices in the existing building (opposite, left) have been converted to loft-style units, and the flamboyant former 'Hall of Remembrance" became the lobby (opposite, right). To accommodate the recessed planes due to a series of light wells, TZG terraced the towers, ranging from eight to 21 stories, finishing each one in a penthouse structure with an inclined roof (right).



called for four thin towers rising from a base. TZG honored that intention by designing a zinc-clad upper portion that appears as four unlinked volumes, thanks to a series of light wells dimpled into the western elevation.

The architects didn't buck Sydneysiders' love of balconies entirely. They designed internal "wintergardens" between the lower-level living room and the building exterior of each unit. Sliding glass doors open onto the wintergardens but block ambient noise. Blinds on the exterior face of the wintergardens also reduce summer heat by blocking the sun and ventilating warm air by a stacking effect. This lessened air-conditioning capacity so much that the team could specify an additional apartment where there was once a mechanical room.

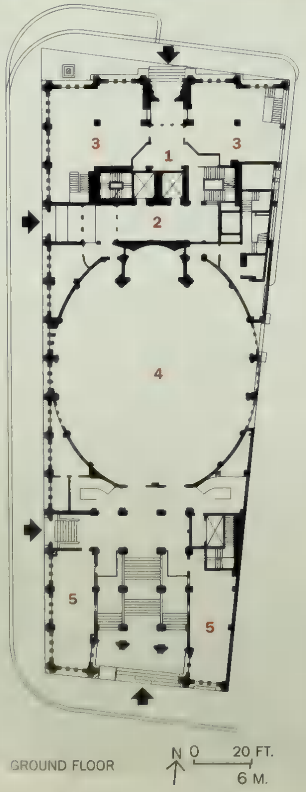
Commentary

While TZG's design reduces Sydney's noise and heat, it still encourages an occupant to feel part of the urban fabric. The firm restored the sandstone facade of Scots Church, which had been acid-etched into dull whiteness three decades ago—a popular practice in the 1970s—and splashed the western elevation of the zinc towers with red to make the different materials of the old and new facades more conversant. Inside, apartment dwellers in the old portion of the structure enjoy original decorative features like cedar joinery and terrazzo floors. On the upper floors, generous glazing in the open-plan units ensure that occupants are visually connected to the city.

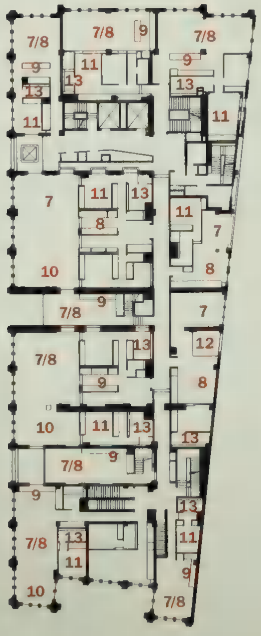
TZG won the Scots Church commission in 2000 as a result of a City of Sydney Design Excellence Competition, a program that was initiated to improve the architectural merits of center-city building. Scots Church was only the second competition of this type, and Greer reports that the contests are increasingly commonplace. While builders certainly appreciate the accompanying development bonuses, the program's attraction rests directly on the shoulders of ingenious solutions like TZG's. ■

Apartments in the renovated lower portions of the structure enjoy original decorative features such as moldings, cedar joinery, and terrazzo floors (top). The new building's one-bedroom duplex units feature living and public areas on the lower level and an internal stair leading to sleeping quarters on a mezzanine (bottom).

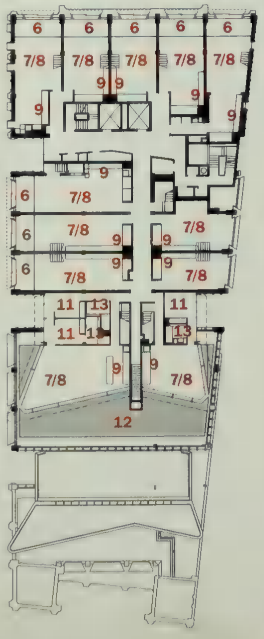
1. *Lobby*
2. *Hall of Remembrance*
3. *Units*
4. *Assembly Hall*
5. *Church property*
6. *Wintergarden*
7. *Living room*
8. *Dining room*
9. *Kitchen*
10. *Studio/study*
11. *Bedroom*
12. *Terrace*
13. *Bath*



GROUND FLOOR



SECOND FLOOR



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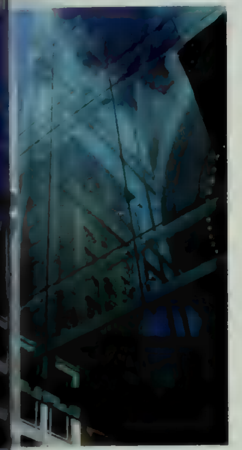

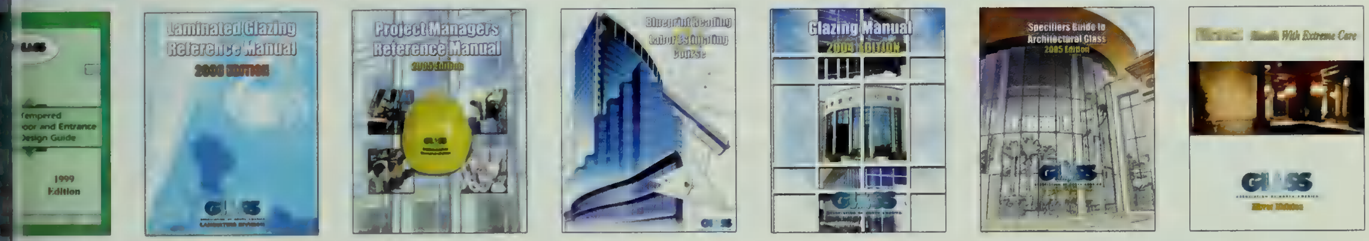

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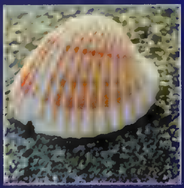

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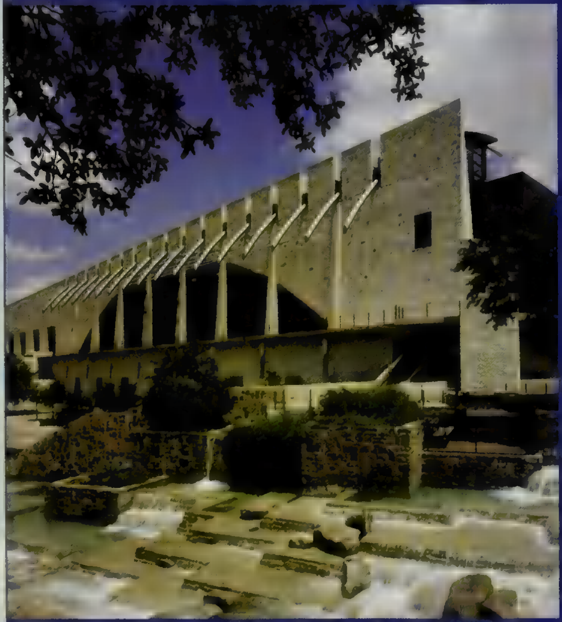

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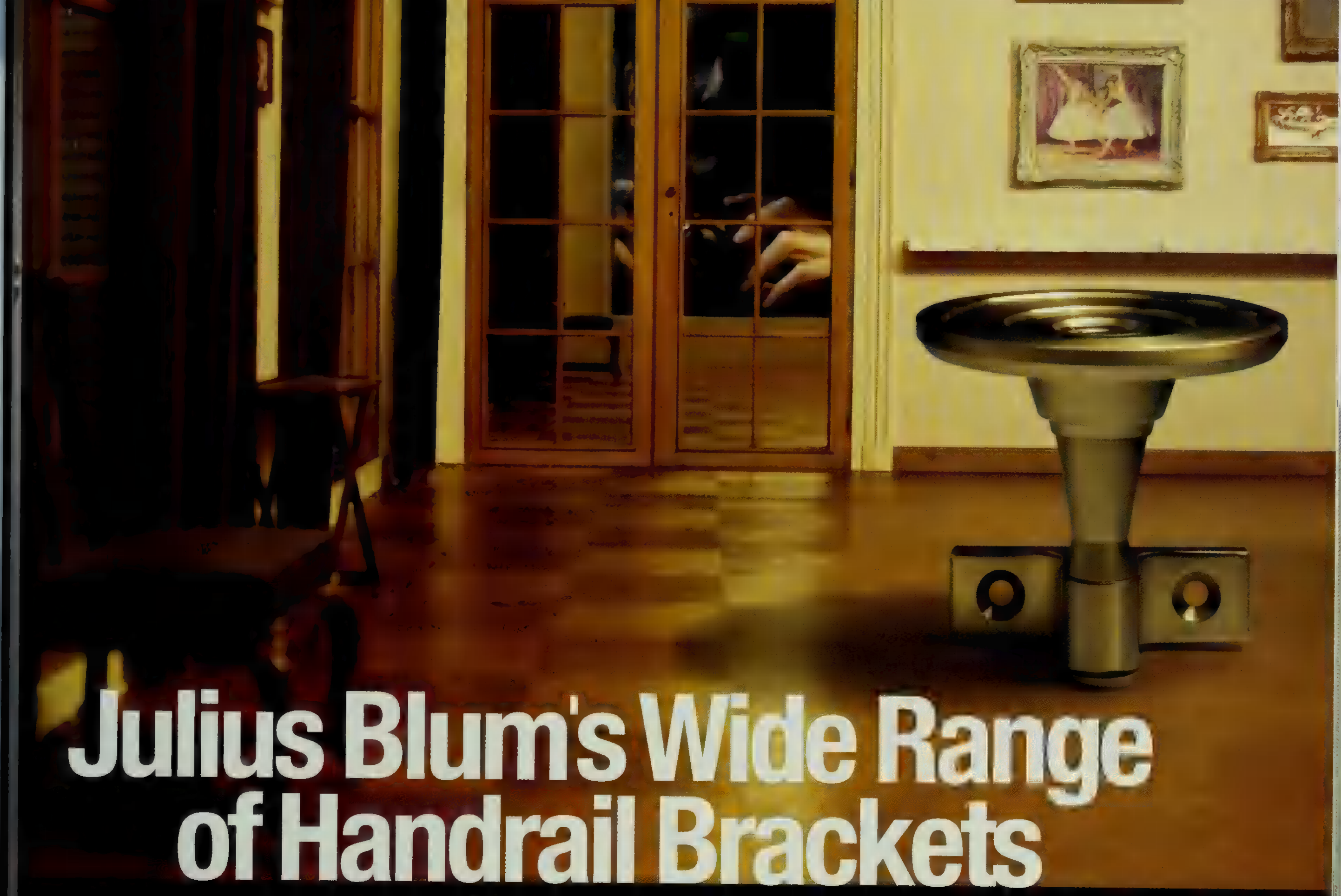

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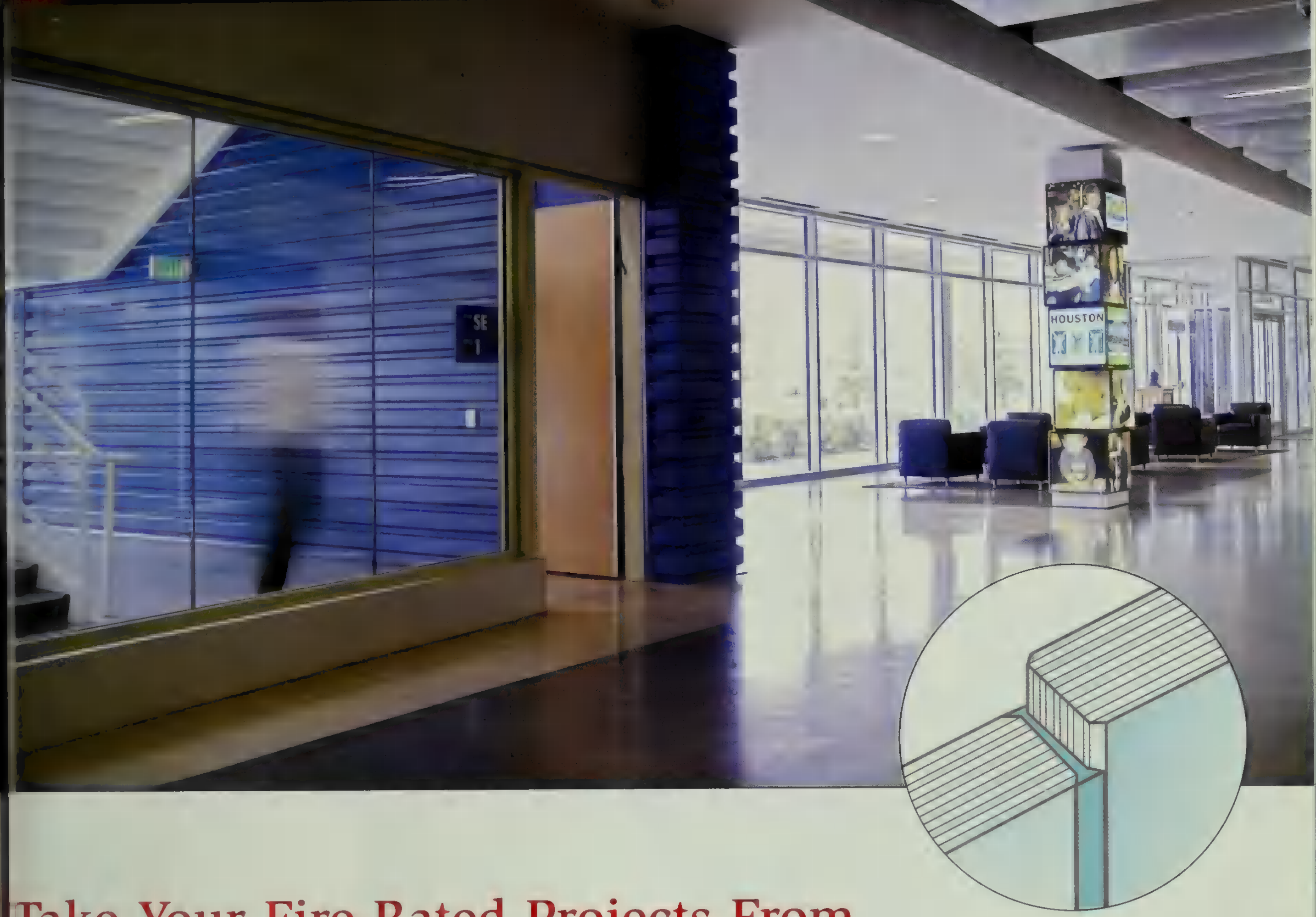

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Getting Aggressive About Passive Design

RCHITECTS CANNOT APPROACH THE FINAL FRONTIER IN LOW-ENERGY, ZERO-CARBON DESIGN WITHOUT DDRESSING THAT OLD ENERGY HOG—AND BELOVED AMERICAN FRIEND—AIR-CONDITIONING

y Russell Fortmeyer

How sad that air-conditioning, perhaps the definitive building technology of the 20th century—responsible for the appearance of more architecture than all of the "isms," genius practitioners, and political dictators put together—has increas-gly become a dirty word among some architects. And how ironic that e more energy-hogging air-conditioning systems we build, the hotter e planet becomes.

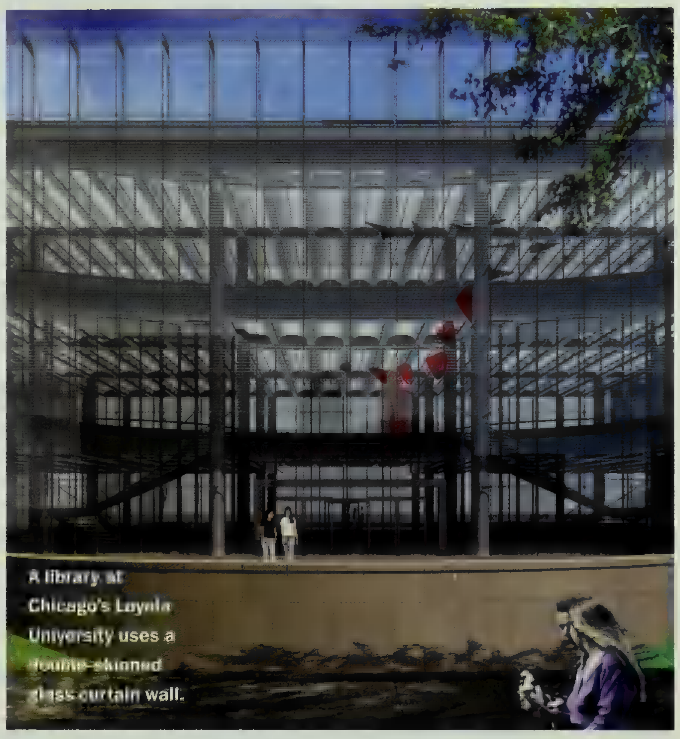
In his 1969 book *The Architecture of the Well-tempered vironment*, Reyner Banham considered the air-conditioning unit a ortent in the history of architecture." But might we be on the cusp of a cline in its dominance? Although basic, time-honored design strategies ch as exterior shading, interior thermal mass, operable windows, and reful site orientation have reemerged in the past decade under the guise green architecture, passive or natural ventilation remain exceptions.

According to McGraw-Hill Construction's 2006 *Construction utlook*, America built more than 150 million square feet of office space 2005 alone, with the largest portion in Phoenix. We can safely assume at all of this space—and that in Phoenix in particular—came equipped ith air-conditioning. This overwhelming evidence of our addiction to hat Willis Carrier, the father of modern air-conditioning, called "man-ade weather," has not prevented an adventurous set of architects and gineers from aggressively pushing for more passive design strategies.

ey call it the "Windy City"

evon Patterson, AIA, a principal with Solomon Cordwell Buenz (SCB) in hicago, calls the implementation of passive ventilation strategies—basi-lly, anything to reduce dependence on air-conditioning—a "forward-thinking" consideration. In the firm's design for the 69,000-square-foot Information Commons and Digital Library at Chicago's Loyola University, scheduled to open in November 2007, the need for energy efficiency that wouldn't sacrifice the building's transparency led the architects to knock on Matthias Schuler's door. Schuler, a mechanical engineer who runs the Stuttgart-based climate engineering firm Transsolar, assisted SCB in developing a double-skinned glass curtain wall as part of an integrated system of radiant slabs, underfloor ventilation, and operable windows that would result in smaller overall mechanical systems. Patterson says Chicago's extreme weather conditions—hot summers, cold winters—prevented an entirely natural scheme, but that so-called "mixed-mode" systems that combine conventional heating, ventilation, and air-conditioning (HVAC) with various levels of natural ventilation represent the best attempt to combat air-conditioning's prevalence.

"We were initially going to install some sunshades, but we found this was a better way to mitigate heat gain," Patterson says. Air enters the building off of Lake Michigan from the east through automatically operated clerestory windows on the glass curtain wall. It then moves across the interior to louvers at the top of the west wall, where it enters the 3-foot-wide cavity of the double-skinned curtain wall, a design-build point-supported glass system. This warmed air then exhausts via a natural stack effect through a large vent on the top of the building. There are basically two kinds of natural ventilation—the stack effect and wind. Loyola represents a combination of the two.



A library at Chicago's Loyola University uses a double-skinned glass curtain wall.

CONTINUING EDUCATION

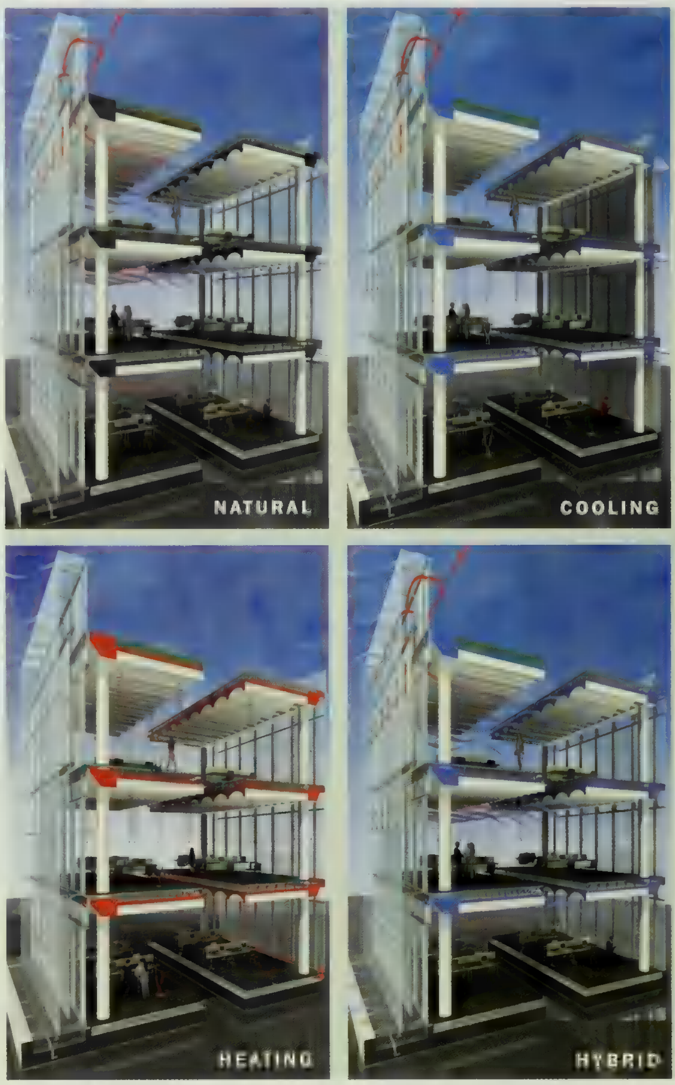
Use the following learning objectives to focus your study while reading this month's ARCHITECTURAL RECORD/ *AIA Continuing Education article. To receive credit, turn to page 248 and follow the instructions. Other opportunities to receive Continuing Education credits in this issue can be found in sponsored sections beginning on page 255.*

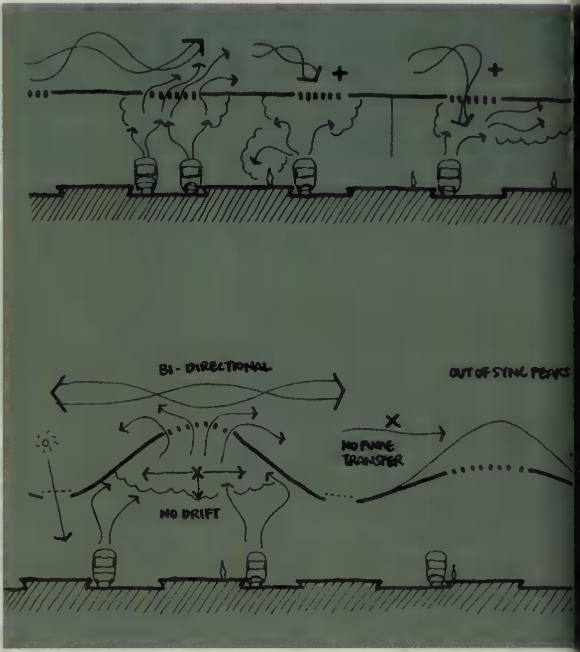
LEARNING OBJECTIVES

After reading this article, you should be able to:

1. *Discuss how some passive ventilation systems work.*
2. *Explain the energy savings from passive ventilation systems.*
3. *Explain the advantages of mixed-mode ventilation systems.*

r this story and more continuing education, as well as links to sources, white papers, d products, go to **architecturalrecord.com**.



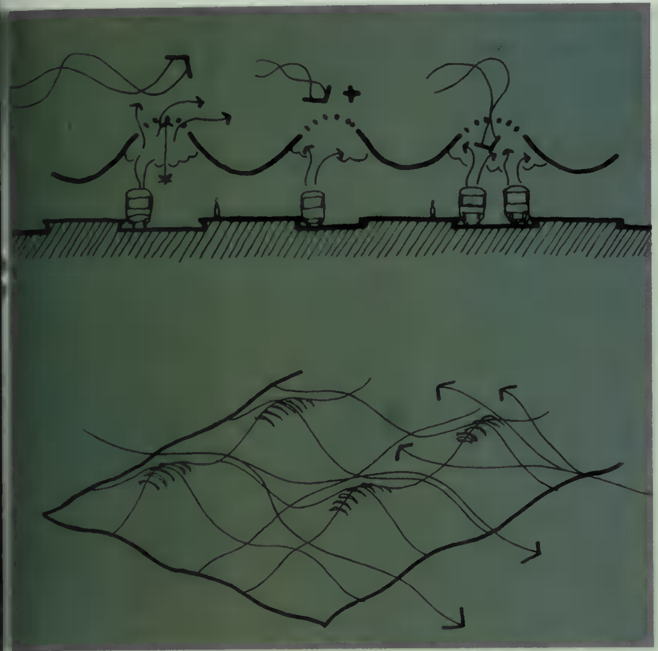


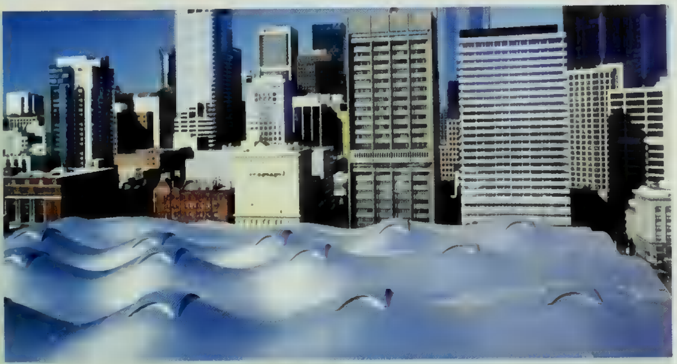
Solomon Cordwell Buenz architects developed four cooling and heating strategies for a digital library at Loyola University in Chicago (left). The natural ventilation scheme takes advantage of wind off of Lake Michigan on the east side of the building to pull air across the space and up through a double-skinned glass curtain wall on the west side. The other schemes show how mechanical systems operate in concert with passive and natural strategies.

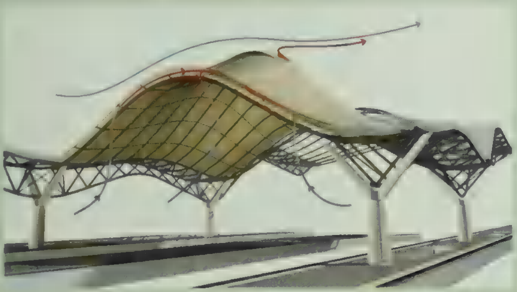
Loyola is a simple enough solution—a tunable glass box wrapped around a concrete structure—but complexity resides in its details. For one, the east wall includes interior low-E shades that form a mini-double-skinned facade when early morning sunlight might otherwise overheat the space. (Europeans often place these shades on the exterior, Patterson says.) Two systems sandwich the air of the interior, which consists mostly of open space for computer workstations. A raised-floor displacement ventilation system provides conditioned air designed to handle the first 8 feet of vertical space, as opposed to conditioning the entire 12 feet to the ceiling. By locating the air supply in the floor, the architects could install in the exposed poured-concrete, barrel-vaulted ceiling the plastic tubing needed for radiant cooling and heating. Vaulting not only contributed more surface area for the radiant system, it also optimized reflection for the efficient T5 fluorescent indirect lighting system.

Of course, chilled slabs lead to worries of condensation and indoor rain showers, but Transsolar's modeling showed that with a minimum of 67 degrees Fahrenheit for the slabs, there would be only 10 days each year where the slabs would be colder than the dewpoint. The building's conventional HVAC system easily accommodates dehumidification for these instances. The west facade, though, remains the lynchpin in the design. Early computational fluid dynamic (CFD) modeling of this side o the building showed air would flow over the top of the extended curtai wall and create a negative pressure zone on the backside that would pull ai out of the wall's cavity. The curtain wall sits atop a trench, which pulls ai in to facilitate the stack effect. In winter months, with the trench closed warm air builds up in the wall cavity to help heat the building.

In 2004, the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) revised its bible of air-conditioning—*Standard 55, Thermal Environmental Conditions fo Human Occupancy*—to account for studies that proved that when peopl have more control over their environment, they typically accept a wide range of temperature conditions. In 2000, one influential study led b Gail Brager at the University of California at Berkeley's Center for th Built Environment showed that traditional research in human comfor expectations neglected to adequately consider three modes of adaptation physiological, behavioral, and psychological. While Brager did not fin that physiological adaptation, or how a body adjusts to a climate over long duration, could account for much, she did find that behavior—removing clothing, turning up fan velocities—could significantly alte environmental perceptions with occupants. Brager also found that psy







Grimshaw Architects' design for the Southern Cross Station in Melbourne, Australia, takes advantage of crosswinds to induce the stack effect in a double-skinned domed roof. The architects and engineers relied on 19th-century train-station designs to inspire the completely naturally ventilated station, since computational fluid dynamic modeling could not be undertaken until design had progressed significantly. The station, open since 2006, has been considered a success.

ologically, occupants of naturally ventilated buildings grow accustomed less consistency in temperature, eventually coming to expect interior nditions that more closely hew to outdoor weather.

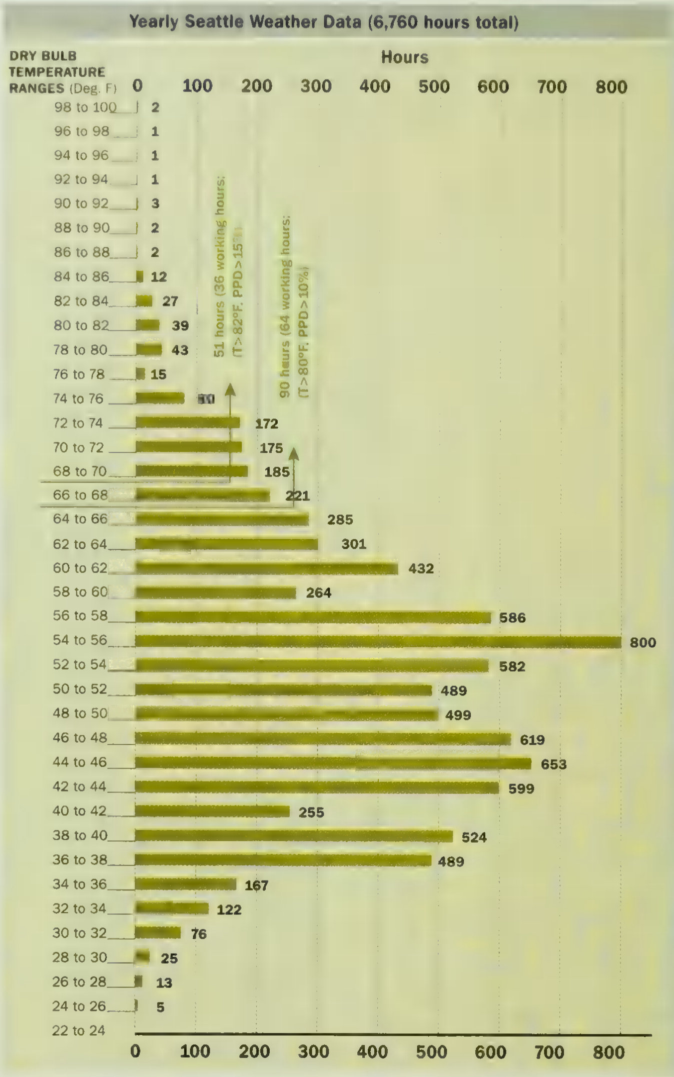
These shifts in perception undoubtedly encouraged SCB's archicts to take advantage of Chicago's more temperate weather periods for tural ventilation. "A weather vane on the roof can open the facades and duce ventilation when outdoor temperatures fall within a range of 55 to degrees," Patterson says, noting that the building's fullest potential lies in ring and fall. Still, he estimates that's enough time averaged across the ar for the building to beat ASHRAE's 90.1 Energy Standard by 50 percent.

reen for open, red for closed

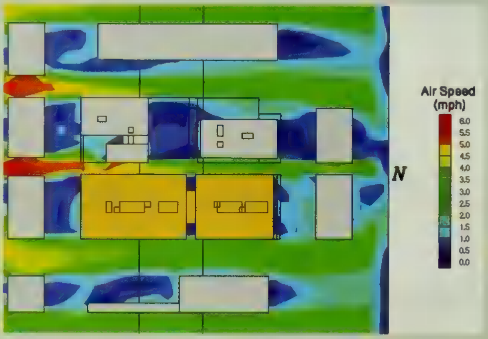
r architects and engineers, this sort of mixed-mode design probably presents the future direction of passive ventilation schemes. For risklverse developers, mixed-mode designs offer flexibility—tenants who efer air-conditioning can choose to ignore the windows—as well as a ttress against the unrelenting onslaught of humidity. At NBBJ's new fices in Seattle [RECORD, January 2007, page 110], Allan Montpellier, a echanical engineer with the local office of Flack+Kurtz, developed a ixed-mode approach for an underfloor HVAC system that depends on occupants to operate windows when the air-conditioning is off. Green and red indicator lights, tied to the building's HVAC control system, alert staff to when they can open windows. The approach can also backfire. "If you put a desk up against a window, that person will then 'own' that window," Montpellier says. "You really need space between desks and windows—you have to think psychologically about the space."

But before Montpellier could get to this point, he undertook a comprehensive review of what he terms a "typical meteorological year" in Seattle. He developed a chart for NBBJ that showed the number of hours in a year when the temperature would stay in a specific range; ever the jargonists, many engineers call this "binning up" temperatures. For example, the chart indicated 432 hours annually for a bin of 60 to 62 degrees, but Montpellier mainly focuses on the values above 80 degrees. "You really start to get uncomfortable around 80 to 85 degrees, even with a ceiling fan," Montpellier says. "Above that, people will complain." He found there were only 64 working hours per year where the temperature exceeded 80 degrees, which helped convince NBBJ to go with the mixed-mode design, though he notes each client tolerates different environmental conditions.

Having established a case for natural ventilation, Montpellier then had to determine if he could secure enough openings in exterior



Flack+Kurtz prepared a typical meteorological year chart for the design of the offices for NBBJ architects (far left). The chart indicates how many hours out of each year the outdoor temperature will fall into specific ranges. Temperatures above 80 degrees Fahrenheit are typically too uncomfortable to take advantage of natural ventilation. A CFD analysis of a typical office floor (below) indicates the air velocity across the floor plate on a particular day. Open offices facilitate airflow across the entire floor, helped in part by a central atrium that draws air to exhaust through the roof. Architects at NBBJ (above) open and close windows based on green and red indicator lights installed throughout the offices.



walls to get the minimum amounts of air the scheme would require. The International Mechanical Code requires that for every square foot of floor area, you need 4 percent of the wall area for operable windows. Montpellier says he designs closer to 10 percent, as the code suggests a minimum that doesn't adequately address occupant comfort issues. At this point, Flack+Kurtz developed a CFD model of the building to gauge airflow patterns around and through the structure to ensure a natural ventilation scheme could accommodate the interior recesses of the building. Relatively standard design tactics—shallow, open floor plates no wider than 50 feet and a central atrium—facilitated air movement.

Engineers often refer to CFD modeling as definitive—a design tool producing results as good as the built thing. Paul Linden, chair of the department of mechanical and aerospace engineering at the University of California at San Diego, says CFD modeling can generate skewed results since most existing software, such as the widely used EnergyPlus from the Department of Energy, contains programming code that doesn't take into account internal heat gains. "EnergyPlus in its traditional form is for sealed, air-conditioned buildings," he says.

Linden, whose research has focused on airflow modeling, says updating EnergyPlus to consider natural ventilation schemes, transient environmental conditions, more complicated geometries, and estimates of con fort levels for spaces will be key to the software's usefulness in design. Still, h says he worries that many consultants don't know how to read CFD analys results, and even worse, hardly anyone monitors buildings post-occupanc to determine the accuracy of CFD predictions. "CFD models produce ni pictures," Linden says, "but who's to say what's right or wrong."

Model behavior

William McDonough + Partners developed a similar scheme as that NBBJ for a mixed-use office project in Barcelona, with manually operab windows that allow cool air to filter into a central atrium and the exhaust through the roof. The architects produced a user's manual for th building, now under construction, explaining the role each occupa would play in how the building functions. John Easter, a director McDonough, says the busy Barcelona streets surrounding the project ce tainly produce problems with indoor air quality and noise—two of th chief complaints of natural ventilation—but the city's commitment reducing pollution should help in the long run. "There are times wi heavy traffic where they will need to close up the building, but it's a sy tem the tenants monitor and will have to adapt to," he says.

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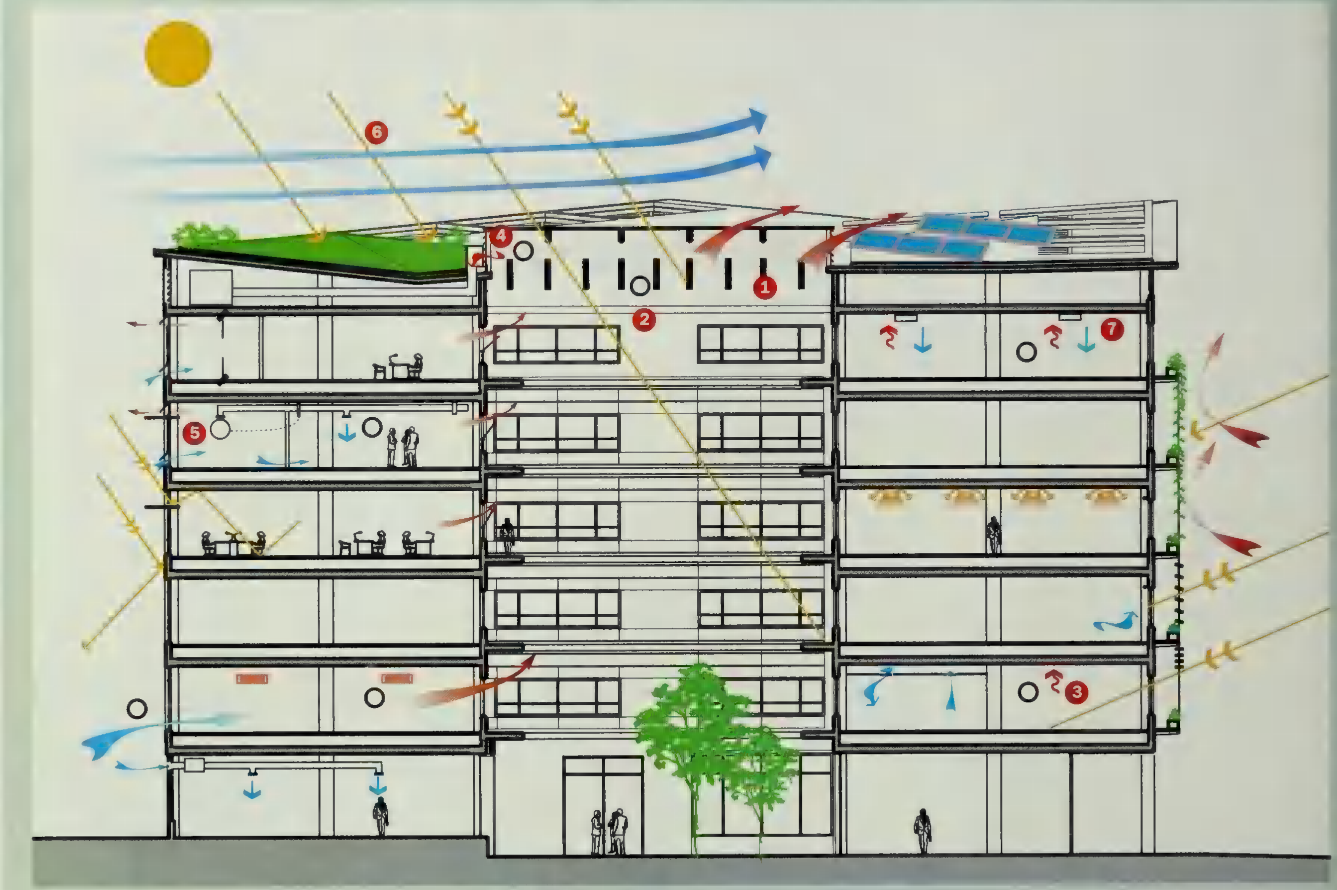

Ecourban 22@, Barcelona, Spain, by William McDonough + Partners

1. Baffles to minimize solar heat gain and increase stack effect.
2. Air stratifies above this "neutral pressure level."
3. Exposed building thermal mass lessens temperature swings from day to night.
4. Louvers induce the stack effect, providing return air to the mechanical room.
5. CO_2 sensors reduce mechanical ventilation during unoccupied times.
6. Northwest winds assist ventilation with southeast facing openings.
7. Fan-coil units supply mechanical ventilation.

The term "risk" pops up frequently in discussions of natural ventilation and unconventional building systems. Matt Herman, an energy-modeling consultant with Buro Happold's New York office, worked on the McDonough project. He says the emergence of better performance-based analysis tools has instilled engineers with more confidence. After typical building energy modeling, or thermal analysis, is complete, Herman usually embarks on creating an airflow network. This relatively simple analysis, which he performs using the IES Virtual Environment software, models bulk air transfer around and through a building across an entire year. An airflow network primarily yields graphs that compare indoor to outdoor air temperatures throughout a year. It takes into account materials, solar obstructions, internal heat loads, and occupancy. Although it takes time to set up, running the program can take a few minutes to a few hours. A CFD model, on the other hand, can take days to calculate and, while it produces a high level of information about airflow, its data accounts for only one specific instance in time, usually a worst-case situation.

Although software tools have helped justify designs to risk-averse clients, some architects have returned to the pre-air-conditioning era for inspiration. Architects and engineers must discard a lot of cultural baggage to implement natural ventilation schemes. Modern air-conditioning, arguably first installed in Brooklyn in 1902 by Carrier, took decades t become what Philip Johnson would call a crutch—an easy solution allowing architects to block out the real world, hermetically sealing our dail lives in a cocoon of ignorant bliss. Not until movie theaters widely adopte the technology in the 1920s did the public begin to demand it. ASHRA first institutionalized occupant comfort levels with a chart for engineers i 1924. That became Standard 55 in 1974, which for years has supported th case for air-conditioning for nearly every building in America.

Grimshaw Architects looked at 19th-century European rail stations to find design tactics for the Southern Cross Station, completed i Melbourne, Australia, in 2006. Victorian stations typically had high barr vaults that would help force a plume of smoke up away from traveler with linear clerestory vents along the top of the arch for exhaus Grimshaw implemented a more high-tech version of this with a dome double-skinned roof that would absorb heat and contaminants into a open, gridlike inner layer, which would then exhaust through a 16-inc cavity out of "moguls" at each peak. CFD modeling showed that win sweeping across the top of the roof would engender a pressure differentia or stack effect, at the mogul openings, naturally pulling the heat out of th cavity. Engineers considered a variety of airborne contaminants—sulfu

House, Taylors Island, MD
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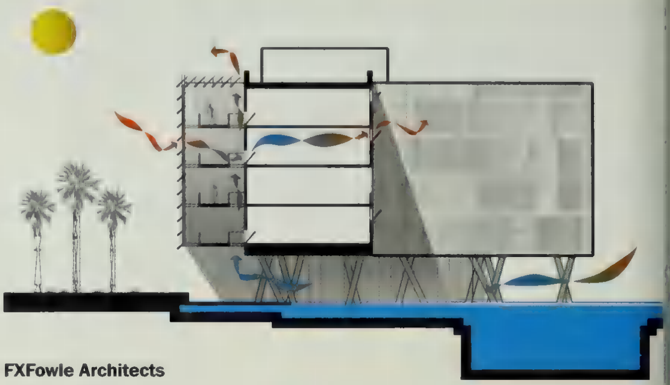
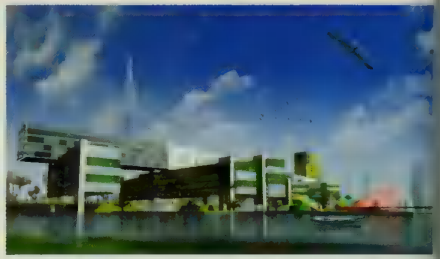
dioxide, nitrous dioxide, and carbon monoxide—to ensure the system would work under every condition. Keith Brewis, a director in Grimshaw's Melbourne office, says a 1-foot opening along the ground plane of each wall's facade supplies the station's air for the system to work. "During the competition phase, we hadn't done the CFD analysis, so we made a provision in the plan and cost to put a fan in the apex of the domes," Brewis says. "But we've been open and there hasn't been a concern."

Although Brewis says Grimshaw seeks to implement natural ventilation schemes on every project, he feels governments should lead the call to action since leasing agents can thwart a developer from even considering unconventional design approaches. While enlightened clients help, in nearly every case discussed in this article designers stressed the need to educate clients. SCB's Patterson says Loyola approached the topic unenthusiastically until the architects took the university's key players to visit similarly ventilated buildings Schuler had designed in Germany. Scott Frank, a mechanical engineer with Jaros Baum & Bolles in New York, says it can be a tough sell since owners view the components that make mixed-mode systems function as adding directly to cost and maintenance. "In the end, facades of buildings are going to have to be a more active component of design," Frank says, suggesting perhaps the integration of radiant systems into facade components as one potential solution. Although eliminating air-conditioning sounds radical in 2007, the possibilities for an architecture unburdened by its demands clearly remain open to discussion. ■





FXFowle Architects designed this residential project for Dubai to take advantage of man-made lakes for natural cooling during the night. A screen on one side of the building filters sunlight to lessen heat gain on each apartment.

AIA/ARCHITECTURAL RECORD CONTINUING EDUCATION

INSTRUCTIONS

- **Read the article "Getting Aggressive About Passive Design" using the learning objectives provided.**
- **Complete the questions below, then fill in your answers (page 249).**
- **Fill out and submit the AIA/CES education reporting form (page 249) or download the form at archrecord.construction.com to receive one AIA learning unit.**

QUESTIONS

1. What are passive ventilation design strategies?
  a. lower-cost ventilation methods
  b. ventilation without using fans
  c. harnessing wind and solar power
  d. anything that reduces the dependence on air-conditioning

2. What is the result of an integrated system of passive ventilation?
  a. less expensive to install the system
  b. less design time is needed for passive systems
  c. smaller overall mechanical systems
  d. easier to calculate the capacity of the system

3. The Loyola University's concrete barrel vaults will serve all except which purpose?
  a. optimize the indirect lighting
  b. carry radiant cooling/heating tubes for the floor
  c. carry radiant cooling/heating tubes for the ceiling
  d. contribute more surface area for the radiant system

4. How will the worries of condensation from cooling slabs of concrete be controlled?
  a. the cooling would not be run on days colder than the dewpoint
  b. portable dehumidifiers will run when the dewpoint is high enough for condensation
  c. the building's HVAC system will accommodate for the humidity
  d. the climate in Chicago does not get humid when it is hot

5. In which way will the trench affect the heating/cooling at Loyola's library?
  a. the trench continuously feeds cool air into the building
  b. the trench allows air to warm up before entering the building
  c. the trench pulls air through when it is open, to both heat the building and facilitate the stack effect
  d. the trench allows both warm and cool air to flow into the building

6. Studies prove that people accept a wider range of temperature conditions in which circumstance?
  a. when they are paid well and praised
  b. when they have control over their environment
  c. when they are young
  d. when they are happy

7. Creating an airflow network analysis takes all except which factor into consideration?
  a. age of the building
  b. internal heat load
  c. occupancy
  d. solar obstructions

8. Modern air-conditioning was not demanded by the public until which happened?
  a. grocery stores adopted air-conditioning
  b. the World's Fair introduced air-conditioning
  c. movie theaters adopted air-conditioning
  d. ASHRAE produced a chart of occupant comfort levels

9. Air-conditioning became the standard for buildings in America due in part to which event?
  a. Willis Carrier installed the first air-conditioning in Brooklyn
  b. ASHRAE's occupant comfort chart became Standard 55
  c. the first enclosed shopping center was built
  d. nuclear energy experiments were performed

10. What should you do to convince a client to approve mixed-mode ventilation?
  a. chart the annual temperature fluctuations for the project's climate
  b. design more than 4 percent of the wall as operable windows for every square foot of floor area
  c. develop a CFD model of the building to gauge airflow patterns
  d. all of the above

Program title: "Getting Aggressive About Passive Design," Architectural Record (05/07, page 241). 057EDIT1

AIA/CES Credit: This article will earn you one AIA/CES LU hour of health, safety, and welfare credit. (Valid for credit through May 2009.)

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3.	a	b	c	d	**8.**	a	b	c	d
4.	a	b	c	d	**9.**	a	b	c	d
5.	a	b	c	d	**10.**	a	b	c	d

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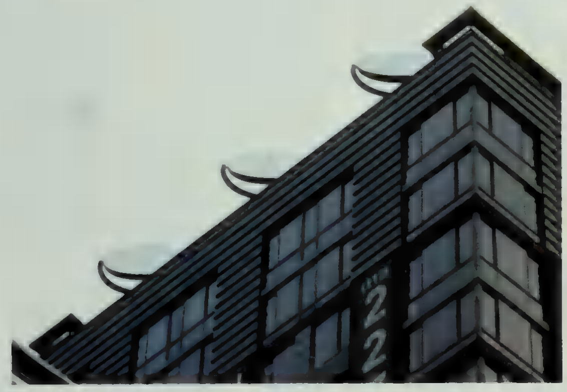
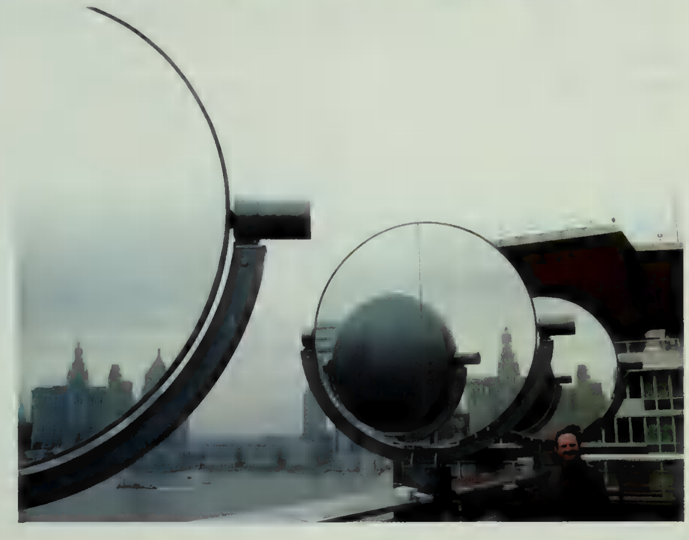
Tech Briefs

Heliostats, an old technology, harness the sun's power to **rovide daylight to otherwise dark spaces,** while the sustainable design movement turns to the **nderdeveloped tool of life-cycle assessments** to jump-start green building rating systems

mple and bright, heliostats tap sunlight for lighting outdoor d, increasingly, indoor spaces



At Battery Park City's Teardrop Park, Carpenter Norris Consulting installed three heliostats (left and below two) to bring daylight into a secluded urban landscape. The mirrors track the sun and reflect elliptical-shaped spots of daylight—at nearly 90 percent of the sun's brightness—onto eighteen places in the park. Alternately, fiber-optic cable (bottom) is used by Parans to bring daylight to otherwise conventional-looking light fixtures deep within a building.



unny morning at the new Haus
Forschung in Vienna brings
re than another day's work.
ough a system of mirrors,
sms, and fiber cables, sunlight
lf is funneled into the foyer.
aking through the Forschung
ling is the latest experiment in
iostatic lighting—bringing the
inside the building.

Heliostats are mirror arrays
t track the sun, following
programmed sequencing direc-
ns from software or responding
exterior-mounted sensors.
nlight can be reflected from a
ge, high-quality, roof-mounted
ular tracking mirror to a sec-
dary mirror or mirrors, and then
ected inside a building, letting
nshine appear as if it were pro-
ed by electrical sources.

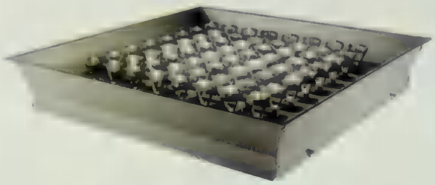
The mirrors have been around
decades. However, only recently,
n increased interest in green
rgy and CNC cutting processes,
ch have reduced the costs of
chining specialty optics, have
hitects begun to seriously con-
er using the mirrors for light and
rgy sources.

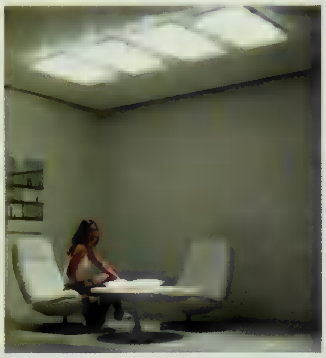
The designers James
penter and Davidson Norris,
New York's Carpenter Norris
nsulting, have recently installed
iostats on a residential tower
Battery Park City. The mirrors
ng daylight into a portion of the
v Teardrop Park, a 2-acre park
signed by landscape architect
chael Van Valkenberg, that would
erwise escape the path of the
. Eight feet in diameter, the mir-
s focus light that is 90 percent
he brightness of the sun onto
elliptical footprint on the ground.
rris says glare is not an issue, as
intense light source is no differ-
t than staring at the sun—a pastime few people willingly indulge in. Norris and Carpenter have designed a more complex version of a heliostat as a perforated metal lining for the interior of the dome of New York's new Fulton Street Transit Center. That nearly $900 million project, designed by Grimshaw Architects and scheduled for completion in summer 2009, would reflect light down to multiple levels of subway platforms and corridors.

Although the technology has existed for centuries, new developments in light-delivery systems, particularly with fiber optics, have been embraced in Europe in recent years. German artist and designer Andrea van der Straeten collaborated with Italian architect Angelo Stagno for the Haus der Forschung project, a foyer lighting scheme in a new center for science and research funding in Vienna's 9th District. The designer and architect worked with the Swiss heliostat manufacturer Lumena, Swedish natural lighting firm Parans, and the Bartenbach Light Laboratory, arguably Europe's leading innovator in lighting and architecture.

Stagno and van der Straeten produced their design as the winner of an art and architecture competition sponsored by Austria's Bundes Immobilien Gesellschaft. They mounted a 5-foot heliostat mirror on the roof, which tracks the

Tech Briefs





The Swedish company Parans Solar Lighting has developed a range of products that take advantage of heliostats (above and top left) to deliver sunlight via fiber-optic cables to light fixtures in interior spaces (left).

sun using photosensors. That light is reflected at a 35-degree angle down a 60-foot shaft to a set of lenses on top of the entrance awning, Stagno and van der Straeten say. The lenses, part of a Parans-built lighting module, connect directly to 25 fiber-optic cables that vary in length. The cables, ranging from 27 to 55 feet long, are routed into the foyer ceiling, at which point they snake down into the room. "Nobody could say how much light there would be at the end of the cable after about 45 feet," van der Straeten says. "Our experience now is that it changes color, not intensity. It's a little more green."

Excess heat—possibly even fire—is not a concern because heliostats designed for lighting do not concentrate the sunlight, says Bartenbach's Wilfried Pohl, the firm's general manager for research. Bartenbach installed another kind of system that guides sunlight through 20-inch tubes into the firm's basement, where the light is distributed in a more central overhead array. Custom-built heliostats are still fairly pricey at between $13,000 and $26,000, but firms like Parans are starting to make complex hybrid lighting systems using mirrors and natural light, with integral fluorescent lamps taking over on cloudy days. Many occupants cannot tell the difference, though Stagno dreams of a day when buildings require no utility electricity connection at all. *Michael Dumiak*

Green program developers embrace life-cycle assessments to gauge building performance

Efforts to make life-cycle assessment (LCA) an integral part of sustainable design practices are beginning to bear fruit. Since late 2004, the U.S. Green Building Council (USGBC) has been working to incorporate the methodology into its widely used building-rating system, LEED, and has committed to producing a detailed plan for integration by November 2007.

The two-year-old not-for-profit organization, Green Building Initiative (GBI), has already created a climate change calculator primarily intended for use with its own rating system, Green Globes. But the organization also plans to release a stand-alone version of the software, without charge, to other green-building organizations, trade associations, or state and municipal governments. "We thought this was too important to keep to ourselves," says Ward Hubbell, GBI executive director.

The endeavors of both organizations should make LCA tools more accessible to architects, ultimately fostering a stronger connection between rating-system certification and environmental impact. LCA is a methodology that takes into account factors such as embodied energy, air pollution, and waste production associated with products through all stages of their life span, from material extraction and processing to eventual disposal. "We are helping strengthen the LCA infrastructure so that it can truly be useful to designers," says Scot Horst, chair of the USGBC LEED steering committee, the group charged with shaping the council's rating system.

The calculator created by GBI will allow designers to evaluate the global warming potential and other environmental impacts of 400 of the most common building assemblies, such as exterior and interior walls, roofs, and windows, according to Wayne Trusty, president of the Athena Sustainable Materials Institute. The institute, along with Morrison Hershfield Consulting Engineers and the University of Minnesota's Center for Sustainable Building Research, developed the software tool for GBI.

No timeline has been set for release of a version of Green Globes tied to the software because a technical committee is now reviewing the tool as part of an effort to make the rating system an American National Standard. However, as early as this month, GBI will make the generic calculator available at its Web site, www.athenasmi.ca.

The USGBC has resolved to use an approach similar to that of GBI: Both organizations' LCA tools will be modeled on the *Green Guide to Specification*, published by the U.K.-based certification, research, and testing organization Building Research Establishment. The guide assigns ratings to building assemblies based on their relative environmental impact. This similarity "is not a big surprise," says Horst, who notes the involvement of Trusty from the Athena Institute in both endeavors. Trusty serves as chair of the GBI technical committee and a USGBC working group studying how best to integrate LEED and LCA. Horst, an Athena vice president, has not participated in the development of the GBI calculator.

Even after integration into the rating systems is accomplished, LEED and Green Globes will still need credits to address environmental-impact areas not easily evaluated using LCA, such as human health risks, indoor air quality, and land use issues, sources say. "LCA is just one component of a much broader design process," says Trusty. "It is not the be all and end all." *Joann Gonchar, AIA*

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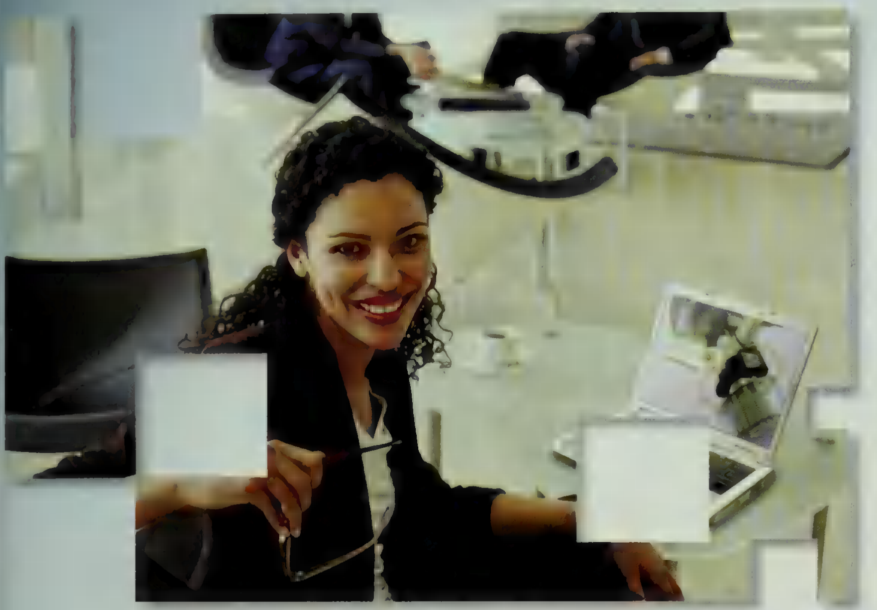

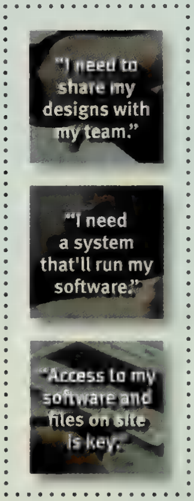
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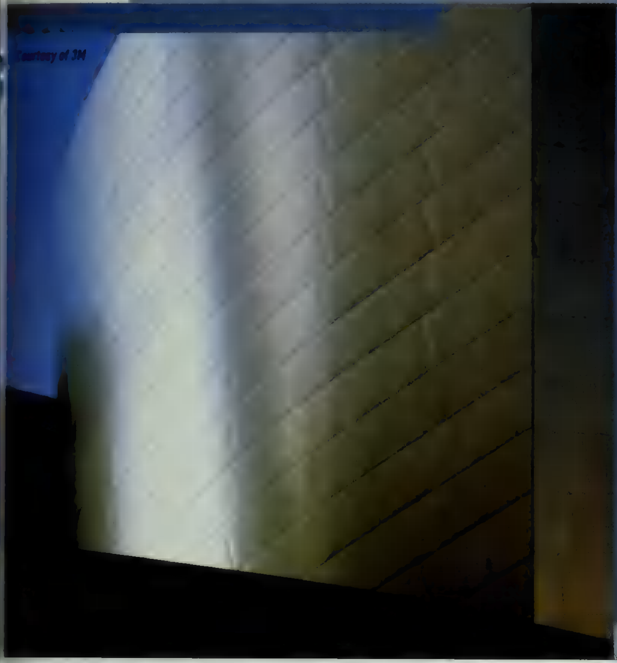

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257-261 Windows and Sustainability: An Environmental Perspective

Windows and doors can contribute to green design and LEED® credits

By Barbara A. Nadel, FAIA

Provided by Pella® Windows & Doors

LEARNING OBJECTIVES:

- Describe the Leadership in Energy and Environmental Design (LEED®) Green Building Rating System from the U.S. Green Building Council
- Discover how windows can contribute to LEED certification
- Explain the environmental impacts of wood, aluminum, and vinyl window frames

263-267 Acrylic Foam Structural Glazing Tape: A New Bonding Alternative

A durable, high-performance glazing option for curtain wall construction

By Karin Tetlow

Provided by 3M

LEARNING OBJECTIVES:

- Discuss the requirements for structural glazing for curtain wall construction
- Explain the benefits and features of acrylic foam structural glazing tape for structural glazing systems
- Describe performance testing of acrylic foam structural glazing tape for structural glazing
- Compare and contrast structural glazing building practices around the world

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Windows and Sustainability: An Environmental Perspective

Windows and doors can contribute to green design and LEED® credits

Provided by Pella® Windows & Doors

By Barbara A. Nadel, FAIA

Former Vice President Al Gore has used the success of *An Inconvenient Truth*, which won an Academy Award for best documentary film, to educate the public about global warming, climate change, and the need for energy-efficient public policies. As a result, a design issue that has long been of great concern to architects and the building industry has captured the imagination and attention of the media, public officials, business communities, and global citizens of every generation who wish to inhabit a healthier planet.

"Buildings and their construction account for nearly half of all the greenhouse gas emissions and energy consumed in the U.S. annually. This includes energy used in the production and transportation of materials to construction sites, and energy used to operate buildings. Looked at another way, America's buildings emit as much carbon as the entire economies of Japan, France, and Great Britain combined. Architects who understand and apply sustainability principles contribute to increased energy efficiency and building occupant performance, while lowering energy costs and the environmental burden of buildings on the environment," says R.K. Stewart, FAIA, principal of Gensler, San Francisco, and 2007 AIA National President.

According to Edward Mazria, AIA, founder of Architecture 2030 (www.architecture2030.org), U.S. annual energy consumption is projected to increase by 37 percent and greenhouse gas emissions by 36 percent over the next 20 years. Global energy consumption is expected to increase by 54 percent over this same period. Promoting sustainable design practices will curb emissions and reduce global warming. Resource conservation can contribute to achieving a minimum of 50 percent reduction from the current level of consumption of fossil fuels used to construct and operate buildings by the year 2010.

This article will explore how the Leadership in Energy and Environmental Design (LEED®) Green Building Rating System guides architects through a process that promotes sustainable best practices. Opportunities for obtaining LEED credits with windows, using LEED-NC, Version 2.2, will be discussed, along with a comparison of the sustainable qualities of wood, aluminum, and vinyl window frames.

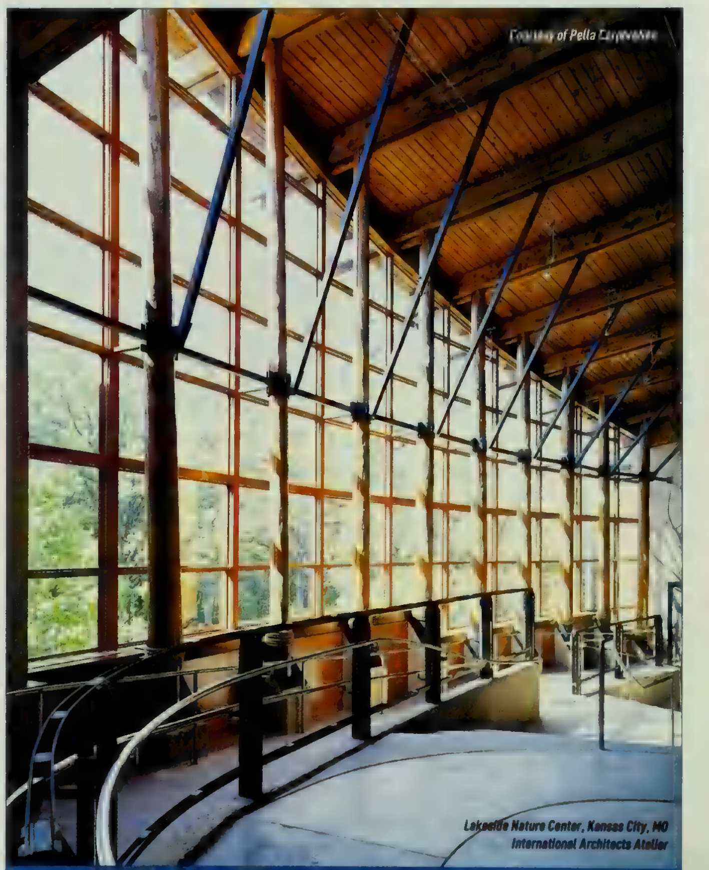
CONTINUING EDUCATION

Use the learning objectives below to focus your study as you read **Windows and Sustainability: An Environmental Perspective.** To earn one AIA/CES Learning Unit, including one hour of health safety welfare credit, answer the questions on page 261, then follow the reporting instructions or go to the Continuing Education section on archrecord.construction.com and follow the reporting instructions.

LEARNING OBJECTIVES

After reading this article, you should be able to:

- Describe the Leadership in Energy and Environmental Design (LEED®) Green Building Rating System from the U.S. Green Building Council
- Discover how windows can contribute to LEED certification
- Explain the environmental impacts of wood, aluminum, and vinyl window frames


Courtesy of Pella Corporation

Lakeside Nature Center, Kansas City, MO
International Architects Atelier

At the Lakeside Nature Center in Kansas City, aluminum-clad wood fixed windows with low-E glass provide a beautifully framed connection to the outdoors while allowing maximum daylight with minimum heat gain.

U.S. Green Building Council

The U.S. Green Building Council (USGBC) is a national nonprofit organization that was formed in 1993, with a membership of building industry groups and individuals. The committee-based organization has developed industry standards, design practices, policy advocacy, information exchange, and education tools. USGBC developed and runs the LEED Green Building Rating System.

The goal of sustainable design is to create high-performance buildings. This concept evolved from various concerns and needs within society and the building industry. Green design is a term referring to design and construction practices that significantly reduce or eliminate the negative impact of buildings on the environment and occupants in five areas:

- Sustainable site planning
- Safeguarding water and water efficiency
- Energy efficiency and renewable energy
- Conservation of materials and resources
- Indoor environmental quality

The goal of sustainable design is to create high-performance buildings.

According to the U.S. Department of Energy (DOE), in 2001, buildings consumed two-thirds of U.S. electricity use, one-eighth of water consumption, and transform land that provides valuable ecological services. In 1998, the U.S. Environmental Protection Agency (EPA) found that over 136 million tons of construction and demolition waste were generated in the U.S., at approximately 2.8 lbs/person/day.

Green building provides many benefits to society that improve the quality of life, from environmental, economic, health, and safety, to community perspectives. The net effect is to:

- Reduce impacts of natural resource consumption
- Protect air and water quality, biodiversity, and ecosystem health
- Improve economics of building operations, asset value, worker productivity, and the local economy
- Enhance building occupant health and safety, relating to risk management
- Minimize strain on local infrastructure, such as landfills, water supply, stormwater sewers and related development and costs; decrease transportation development and maintenance for roadways, and encourage better performance of mass transit systems.

LEED is a national benchmark for high-performance green buildings. It promotes sustainable design and construction, and facilitates positive results for the environment, occupant health, and financial return. LEED provides a green standard of measurement that can prevent greenwashing, or false, exaggerated claims, and advances integrated design processes. This rating system is a design guideline that identifies industry leadership, stimulates green competition, raises consumer awareness, and has transformed the marketplace with sustainability concepts.

LEED offers building owners and operators tools to have an immediate and measurable impact on building performance and implement a whole-building approach to sustainability, through the aforementioned five areas of human and environmental health. LEED provides a method to document success for every building type and life cycle phase, through several programs including LEED-NC for New Commercial Construction and major renovation projects.

LEED-NC

Since inception, LEED programs have been updated periodically with new releases. LEED-NC 2.0 was released in 2000. As of January 1, 2006, all new projects must be registered under Version 2.2. Windows and doors can contribute to one prerequisite and up to 25 points.

Designers should verify the latest applicable versions and their criteria. The LEED rating system is on a five-year review cycle with the development of LEED-NC Version 3.0, in progress.

The whole-building approach encourages and guides a collaborative, integrated design and construction process. LEED is performance-based where possible, compatible with standard design processes, self-evaluating, self-documenting, but not self-certifying. Certification is done solely by USGBC. There are four levels of LEED-NC certification, using a point system Certified level (26-32 points); Silver (33-38 points); Gold (39-51 points), and Platinum (52-69 points).

The LEED rating system certifies buildings, not building materials. However, building materials can contribute to achieving LEED points, only a few of which are dependent upon third party certification or proving equivalence to a given standard.

LEED-NC point distribution is spread throughout five credit categories: Sustainable Sites 22 percent; Water Efficiency: eight percent; Energy and Atmosphere: 27 percent; Materials and Resources: 20 percent; and Indoor Environmental Quality: 23 percent.

These five environmental categories are divided into credits. For each credit, the rating system identifies the intent, requirements, and technologies or strategies to obtain the credit. One or more points are available within each credit, and points are achieved by meeting the requirements. Most categories contain prerequisites. All seven prerequisites must be met in order to qualify for any certification level. In addition to the five environmental categories, there is also an Innovation and Design Process category, for a total of six categories, seven prerequisites, and 69 possible points.

Achieving LEED Points	Possible Points	Points related to windows & doors
1. Sustainable Sites	14	1
2. Water Efficiency	5	0
3. Energy and Atmosphere	17	13
4. Materials and Resources	13	5
5. Indoor Environmental Quality	15	5
6. Innovation and Design Process	5	1
Total	**69**	**25**

Sustainable Sites

Windows and doors can contribute to one point in the Sustainable Sites category.

Light Pollution Reduction, Credit 8 seeks to minimize light trespass from the building and site, reduce sky-glow to increase night sky access, improve nighttime visibility through glare reduction, and reduce development impact on nocturnal environments. Although most of this credit addresses outdoor lighting, it mentions light trespass from interior lighting that shines out through windows at night. The proper use of window treatments, to reduce glare, or direct lighting onto neighboring property, streets or night sky, can contribute to this credit.

Water Efficiency

The second major category, Water Efficiency, has no contributions from windows and doors

Energy and Atmosphere

In the third category, Energy and Atmosphere (EA), windows and doors can contribute to one prerequisite and up to 13 points.

Minimum Energy Performance, Prerequisite 2 calls for establishing the minimum level of energy efficiency for proposed buildings and systems. Building projects should be designed to comply with both the mandatory provisions (Sections 5.4, 6.4, 7.4, 8.4, 9.4, and 10.4) of the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE)/IESNA Standard 90.1-2004 (without amendments), and the prescriptive requirements (Sections 5.5, 6.5, 7.5, and 9.5) or performance requirements (Section 11) of ASHRAE/IESNA Standard 90.1-2004 (without amendments).

Potential strategies include designing the building envelope, HVAC, lighting, and other systems to maximize energy performance. The ASHRAE 90.1-2004 User's Manual contains worksheets that can document compliance with this prerequisite. For projects pursuing points under EA Optimize Energy Performance, Credit 1, computer simulation modeling may be used for confirmation of this prerequisite.

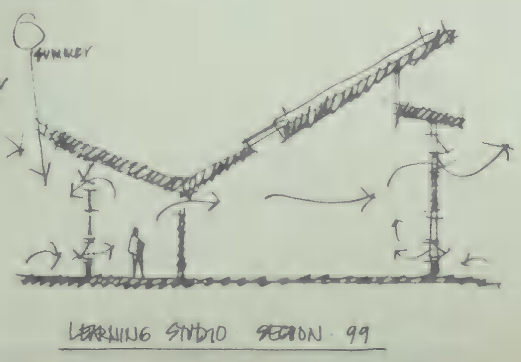
If a local code has demonstrated quantitative equivalence following, at minimum, the DOE standard process for commercial energy code determination, then it may be used to satisfy this prerequisite instead of ASHRAE 90.1-2004. For details on the DOE process for commercial energy code determination, see www.energycodes.gov/implement/determinations_com.stm.

Optimize Energy Performance, Credit 1 addresses increasing levels of energy performance above the baseline in the prerequisite standard to reduce environmental and economic impacts associated with excessive energy use. The number of points increases as energy costs decline. Project teams can select one of three compliance path options. Documenting achievement using any of the three options is assumed to be in compliance with EA Minimize Energy Performance, Prerequisite 2. The options are: Option 1: Whole Building Energy Simulation (1-10 points), Option 2: Prescriptive Compliance Path for small office buildings (four points), and Option 3: Prescriptive Compliance Path (one point).

Many window strategies can be used to help achieve Credit 1, including:

- Minimize undesirable air infiltration. Window weather-stripping at the sash to frame juncture and backer rod and sealant/foam at the window to opening intersection reduce air infiltration.
- Locate windows and shading devices to maximize day lighting and minimize heat gain.
- Use high performance glazing to optimize natural day lighting, heating, and cooling. Low emissivity glass reduces heat gain while allowing visible light. Triple glazing offers center glass U-values as low as 0.16.
- Avoid thermal bridging from metal framing by specifying fiberglass, vinyl, or wood frames or aluminum frames with high performance thermal breaks.
- Locate windows to employ natural ventilation and reduce reliance on energy-dependent mechanical systems.

Drawing credit: Mithun Architects = Designers + Planners, Seattle, WA



Strategically-located windows enable natural ventilation and reduce reliance on energy-dependent mechanical systems.

- Specify between-the-glass blinds since they perform better than room side blinds. With the blinds closed, between-the-glass blinds offer an 18-percent improvement in total window U-value and a 43 percent reduction in solar heat gain when compared to roomside blinds.

Courtesy of Pella Corporation

Wayland Union Middle School, Wayland, MI
Design Plus, Inc.

With the blinds closed, between-the-glass blinds offer an 18-percent improvement in total window U-value and a 43-percent reduction in solar heat gain when compared to roomside blinds.

On-site Renewable Energy, Credit 2, encourages and recognizes increasing levels of on-site renewable energy self-supply, to reduce environmental and economic impacts associated with fossil fuel energy use. Use of on-site renewable energy systems will offset building energy cost. Project performance can be calculated by expressing the energy produced by the renewable systems as a percentage of the building annual energy cost. Points can be achieved based on the percentage of renewable energy used: 2.5 percent achieves one point, 7.5 percent achieves two points, and 12.5 percent achieves three points.

Projects can be assessed for non-polluting and renewable energy potential, including the use of photovoltaics in building elements such as the roof, exterior cladding, or window systems.

Materials and Resources

Windows can contribute to five points in the fourth major category, Materials and Resources (MR).

Recycled Content, Credit 4, calls for an increased demand for building products that incorporate recycled content materials, thereby reducing impacts resulting from extraction and processing of virgin materials. Credit 4.1, worth one point, addresses use of materials with recycled content such that the sum of post-consumer recycled content plus one-half of the pre-consumer content constitutes at least 10 percent (based on cost) of the total value of project materials. Credit 4.2, worth one point, goes a step further, with an additional 10 percent beyond MR Credit 4.1 (total of 20 percent, based on cost), of the total value of project materials.

Post-consumer material is waste generated by households, commercial, industrial, and institutional facilities, in their role as product end-users, and can no longer be used for its intended purpose.

Pre-consumer material is material diverted from the waste stream during the manufacturing process. Excluded is reutilization of materials such as rework, regrind or scrap generated in a process and capable of being reclaimed within the same process that generated it. Windows that include recycled materials like aluminum, glass, and wood can help with this credit.

Regional Materials, Credit 5, addresses an increased demand for building materials and products that are extracted and manufactured within the region, thereby supporting the use of indigenous resources and reducing the environmental impacts resulting from transportation. Credit 5.1, worth one point, discusses the use of building materials or products that have been extracted, harvested, or recovered, and manufactured within 500 miles of the project site for a minimum of 10 percent (based on cost) of the total materials value. Credit 5.2, worth one point, expands this idea, with an additional 10 percent beyond MR Credit 5.1 (total of 20 percent, based on cost) of the total materials value.

If only a fraction of the material is extracted, harvested, recovered, and manufactured locally, then only that percentage by weight shall contribute to the regional value. Project goals can be established for locally sourced materials and suppliers, to ensure that specified local materials are installed during construction. Environmental, economic, and performance attributes should be reviewed when selecting products.

Courtesy of Pella Corporation

slandWood (PSELC), Bainbridge Island, WA
ithun

At IslandWood, a LEED® Gold project in Bainbridge Island, WA, Mithun specified operable wood windows to achieve optimum thermal comfort without air conditioning and with minimal need for heating.

Rapidly Renewable Materials, Credit 6, addresses reduced use and depletion of finite raw materials and long-cycle renewable materials by replacing them with rapidly renewable materials. Credit 6, worth one point, discusses the use of rapidly renewable building materials and products (made from plants typically harvested within a ten-year cycle or shorter) for two-and-a-half percent of the total value of all building materials and products used on a project.

Since the primary materials used in windows (aluminum, glass, wood, and vinyl) come from sources where the time from origination to harvest exceeds 10 years, windows cannot help on this credit. If the harvest time were increased, many pine wood windows would be applicable. Under Version 2.2, pine does not qualify for LEED certification as a rapidly renewable material. Pine has a 20-year growth and harvest cycle, and is a plentiful, sustainable material.

Certified Wood, Credit 7, encourages environmentally responsible forest management. Credit 7, worth one point, addresses the minimum use of 50 percent of wood-based materials and products, certified in accordance with the Forest Stewardship Council's (FSC) Principles and Criteria, for wood building components including, but not limited to, structural framing, flooring, finishes, furnishings, and non-rented temporary construction applications. Since most wood windows use very little FSC-certified wood, the window contribution to this credit is small. Non-certified wood windows may be used, and the credit can still be earned, through FSC-certified wood in millwork, interior doors, flooring, and other applications.

Indoor Environmental Quality

Windows can contribute to five points in the fifth major category, Indoor Environmental Quality (IEQ). Americans spend an average of 90 percent of their time indoors, where pollutant levels may be up to 100 times higher than outdoor levels, according to the EPA.

Increased Ventilation, Credit 2, discusses providing additional outdoor air ventilation to improve indoor air quality for enhanced occupant comfort, well-being, and productivity. Credit 2, worth one point, has two parts. Mechanically ventilated spaces should increase breathing zone outdoor air ventilation rates to all occupied spaces by at least 30 percent above the minimum rates required by ASHRAE Standard 62.1-2004 as determined by IEQ Prerequisite 1, Minimum Indoor Air Quality (IAQ) Performance. Naturally ventilated spaces should design natural ventilation systems for occupied spaces to meet recommendations in the Carbon Trust "Good Practice Guide 237," 1998. Operable windows to naturally ventilate spaces can contribute to this credit.

> *Americans spend an average of 90 percent of their time indoors, where pollutant levels may be up to 100 times higher than outdoor levels, according to the EPA.*

IslandWood, a LEED Gold-certified project in Bainbridge Island, Washington, designed by Mithun Architects, is an environmental learning center. This project meets the LEED 1.0 energy credit, which requires no active heating or cooling for eight months of the year. Windows and doors contributed to 12 of the 40 points that helped this project achieve LEED Gold. The windows did not contain FSC-certified wood, but the project earned credit for FSC wood elsewhere. Operable windows enabled natural ventilation.

Low-Emitting Materials, Paints and Coatings, Credit 4.2, aims to reduce the quantity of indoor air contaminants that are odorous, irritating, and harmful to the comfort and well-being of installers and occupants. Credit 4.2, worth one point, offers criteria for paints and coatings on building interiors (inside the weatherproofing system and applied on-site). Architectural paints, coatings, and primers applied to interior walls and ceilings should not exceed the volatile organic compounds (VOC) content limits established in Green Seal Standard GS-11, Paints, First Edition, 1993. Clear wood finishes, floor coatings, stains, and shellacs applied to interior elements should not exceed the VOC content limits established in South Coast Air Quality Management District, Rule 1113, 2004. Architects can ensure that VOC limits are stated in the paints and coating specifications. ■

This article continues online at
http://archrecord.construction.com/resources/conteduc/archives/0705pella-1.asp

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Program title: **"Windows and Sustainabilty: An Environmental Perspective," (05/07, page 257).** AIA/CES Credit: This article will earn you one AIA/CES LU hour of health, safety, and welfare credit. (Valid for credit through May 2009). **Directions:** Refer to the Learning Objectives for this program. Select one answer for each question in the exam and fill in the box by the appropriate letter. A minimum score of 80% is required to earn credit. **To take this test online, go to http://archrecord.construction.com/continuinged/default.asp**

LEARNING OBJECTIVES

After reading this article, you should be able to:

- Describe the Leadership in Energy and Environmental Design (LEED®) Green Building Rating System from the U.S. Green Building Council
- Discover how windows can contribute to LEED certification
- Explain the environmental impacts of wood, aluminum, and vinyl window frames

QUESTIONS

1. LEED provides a green standard of measurement that can prevent:

☐ **a.** low embodied energy.
☐ **b.** professional liability claims.
☐ **c.** greenwashing claims.
☐ **d.** greenhouse gas emissions and low VOCs.

2. Post-consumer material is:

☐ **a.** diverted from the waste stream after production.
☐ **b.** recycled after reaching the marketplace.
☐ **c.** biodegradable and renewable.
☐ **d.** no longer usable for its intended purpose.

3. Which statement is true about achieving a LEED credit for certified wood?

☐ **a.** Most wood windows are certified by the Forest Stewardship Council (FSC) and qualify for credit.
☐ **b.** Non-certified wood windows can earn certified wood credit if the wood is recycled.
☐ **c.** Forest Stewardship Council (FSC)-certified millwork can earn LEED credit when non-certified wood windows are used.
☐ **d.** Windows, flooring, furnishings, millwork, and permanent construction applications must all be of certified wood in order to achieve the certified wood credit.

4. Design strategies to provide daylighting and views for LEED credits should:

☐ **a.** Achieve a minimum glazing factor of eighty percent.
☐ **b.** Decrease building perimeters to lower energy heat loss.
☐ **c.** Simulate a maximum interior daylight illumination level of 25 foot-candles.
☐ **d.** Ensure performance criteria are met in a minimum of 75 percent of all regularly occupied spaces.

5. Which statement is true regarding window frame materials?

☐ **a.** At current tree planting rates, the supply of wood is expected to increase.
☐ **b.** Some types of vinyl are made from fossil fuels and bauxite.
☐ **c.** Aluminum is made from fossil fuels, minerals and chemical polymers.
☐ **d.** Recycled wood is rarely used in window frames because pieces are generally too small.

6. The material that produces the highest environmental impact due to pollutants and high-energy consumption during production is:

☐ **a.** fiberglass composite.
☐ **b.** polyvinyl chloride.
☐ **c.** aluminum.
☐ **d.** wood treated with paints and coatings.

7. Which statement best describes recycled materials?

☐ **a.** Aluminum recovery in the building industry exceeds the rate of recovery in the consumer sector.
☐ **b.** Of all available aluminum, over 50 percent is recycled.
☐ **c.** Vinyl windows are widely considered as recyclable, especially in Europe.
☐ **d.** Aluminum can be recycled, during manufacturing and before building demolition.

8. The categories and credits that can achieve the most points for LEED certification are:

☐ **a.** Energy and Atmosphere, Minimum Energy Performance, Whole Building Simulation.
☐ **b.** Indoor Environmental Quality, Daylight and Views: Views for 90 Percent of Spaces.
☐ **c.** Materials and Resources, Rapidly Renewable Materials.
☐ **d.** Energy and Atmosphere, Prescriptive Compliance Path.

9. The LEED Green Building Rating System:

☐ **a.** can self-certify green projects in municipalities with self-certified building codes.
☐ **b.** advances performance based design and is self-documenting.
☐ **c.** provides third party certification for selected building materials.
☐ **d.** certifies sustainable building materials.

10. Rapidly renewable materials can contribute to achieving LEED credits if:

☐ **a.** window frames are made from pine.
☐ **b.** materials are made from plants harvested within 10 years or less.
☐ **c.** if they represent one-and-one-half percent of the total value of all building materials and products used on a project.
☐ **d.** window frames are made from recycled aluminium

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Material resources used: Article: This article addresses issues concerning health and safety.

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057SPONB

Pella Corporation is a world leader in the manufacturing of windows and doors for residential and non-residential buildings. Long-recognized in the window industry for its quality and innovation, the company also takes a comprehensive approach to environmental stewardship.

As a founding member of the National Fenestration Rating Council and 2007 ENERGY STAR® Partner of the Year, Pella manufactures and promotes the use of highly energy-efficient products. As a member of the United States Green Building Council, Pella encourages the use of the LEED® certification process and offers products that can contribute to more than 20 of 69 possible points.

Registered with the American Institute of Architects as a Continuing Education System provider since 1995, Pella is committed to developing quality learning activities in accordance with AIA/CES and Health/Safety/Welfare (HSW) criteria. Pella offers several continuing education programs through www.pellacommercial.com in addition to this partnership with Architectural Record.

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Acrylic Foam Structural Glazing Tape: A New Bonding Alternative

A durable, high-performance glazing option for curtain wall construction

Courtesy of 3M

Liberty Memorial Museum, Kansas City, MO. Architect: ASAI Architecture, 2006. Structural glazing with acrylic foam tape conforms with the interior luminous white drum curtain wall.

Provided by 3M

By Karin Tetlow

On the market since 1980, acrylic foam tape is found in a multitude of applications in a cross section of industries around the globe. But it has only recently become available in the U.S. as an effective alternative to structural silicone and spacer tape for commercial curtain wall applications. Available outside of the U.S. since 1990 for structural glazing, it has been used in over 3,000 curtain wall projects in South America, India, Europe, and Asia. As architects, curtain wall fabricators and contractors discover its features and analyze potential production cost and time savings, acrylic foam structural glazing tape for structural glazing should become a viable choice for specifiers of curtain wall glazing systems.

Acrylic foam tape is two-sided, pressure-sensitive, closed-cell acrylic foam. Used within and outside the construction industry, it is designed to bond to a wide range of substrates including most metals, glass, many plastics, composites, sealed wood, paints, and powder coatings. Suitable for both indoor and outdoor applications, it typically replaces liquid adhesives, spot welds, screws, rivets, and other mechanical fasteners. Its many applications range from fastening panels to horse trailers in order to achieve durability and a smooth surface, for attaching flex electronic circuit boards and bonding ceiling panels to suspension frames at Chicago's O'Hare Airport.

In the early 1980's, applications broadened in the commercial construction industry to include permanent bonding and sealing of architectural metal panels to a variety of surfaces including frames, stiffener attachments, I-beams, and metal cladding. Among the many applications from Australia to Brazil and the U.S. to the United Arab Emirates, are high profile examples where acrylic foam tape replaced screws, rivets, welds, and silicones. One is the Frank Gehry-designed Walt Disney Concert Hall in Los Angeles, completed in 2003, where the stainless steel panels were bonded by tape to stiffeners and aluminum framework. Another U.S. application is on the $355 million Dearborn Center in Chicago, IL, completed in 2003, and designed by Ricardo Bofill Taller de Arquitectura of Spain and DeStefano & Partners Ltd. of Chicago. Considered to be one of the most technologically advanced buildings in the world at the time, acrylic foam tape was used to bond stiffeners to the exterior metal trim cladding.

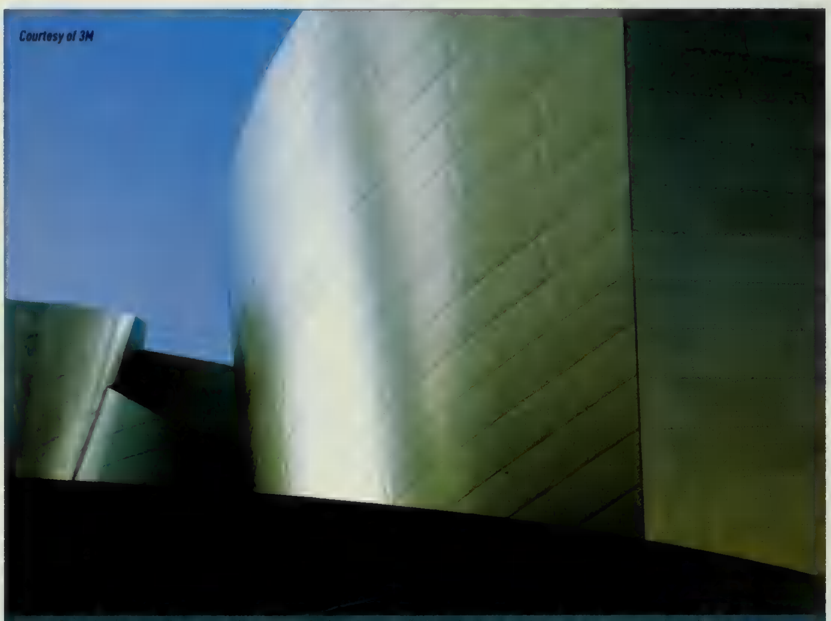
CONTINUING EDUCATION

Use the learning objectives below to focus your study as you read **Acrylic Foam Structural Glazing Tape: A New Bonding Alternative.** To earn one AIA/CES Learning Unit, including one hour of health safety welfare credit, answer the questions on page 267, then follow the reporting instructions or go to the Continuing Education section on archrecord.construction.com and follow the reporting instructions.

LEARNING OBJECTIVES

After reading this article, you should be able to:

- Discuss the requirements for structural glazing for curtain wall construction.
- Explain the benefits and features of acrylic foam structural glazing tape for structural glazing systems.
- Describe performance testing of acrylic foam structural glazing tape for structural glazing.
- Compare and contrast structural glazing building practices around the world


Courtesy of 3M

Walt Disney Concert Hall, Los Angeles, 2003. Architect: Gehry Partners, LLP. Acrylic foam tape was used to bond stainless steel panels to stiffeners and frame attachments.

Examples on other continents include Skidmore, Owings & Merrill's Adelaide Convention Center in South Australia, opened in 2001, where acrylic foam tape bonded aluminum composite panels to a galvanized frame. In Dubai, U.A.E., aluminum composite panels of W.S. Atkins & Partners-designed Burj Al Arab Hotel, opened in 1999, were bonded by acrylic foam tape to the framework to resist high wind loads in this harsh and warm environment.

Acrylic Foam Tape as Bonding System for Curtain Walls

Glazed curtain walls are one of the most commonly used fenestration systems for commercial buildings. Fabricated on site or delivered pre-assembled, glazed curtain walls are classified by how they are built. This is in contrast to windows, which are classified by how they operate. In addition to different construction methods, curtain walls are also distinguished by both the glass selected and the glazing system used for weatherproofing and to hold the glass in place.

Glazing systems support the glass in the frame and seal the dissimilar materials from the weather. Structural glazing is a system of bonding glass to a building's structural framing members utilizing a high strength, high performance product (conventionally, silicone sealant) specifically designed and tested for structural glazing. In structural glazing applications, dynamic wind loads are transferred from the glass, by the structural glazing product, to the perimeter structural support.

Structural glazing is conventionally achieved by using a spacer adhesive tape to hold the insulated glass unit off the frame. Structural-grade silicone sealant is then shot into the space between the frame and glass. The dimensions of the spacer tape govern the thickness of the silicone to be used, and are calculated according to wind load requirements. Common spacer tape dimensions are 1/4 inch thick by 1/2 inch wide.

Acrylic foam structural glazing tape replaces both spacer tape and structural silicone for structural glazing. A single product comprising a solid adhesive construction, it serves as the primary bonding agent and a secondary sealing agent. Spacer tape is sometimes referred to as "structural glazing tape" and should not be confused with acrylic foam structural glazing tape.

Acrylic Foam Structural Glazing Tape: Features and Benefits

One of the significant features that distinguish acrylic foam structural glazing tape is its viscoealasticity. Viscoelasticity describes materials that exhibit both viscous and elastic characteristics. Viscous materials are inherently tacky and flexible yet resist shear flow and strain when a stress is applied. Elastic materials strain when a stress is applied and return to their original state once the stress is removed. Viscoelastic materials have elements of both of these properties and, as such, exhibit time and force dependent strain. Other significant features are strength, durability, resistance to moisture and chemicals, productivity, convenience and uniform appearance.

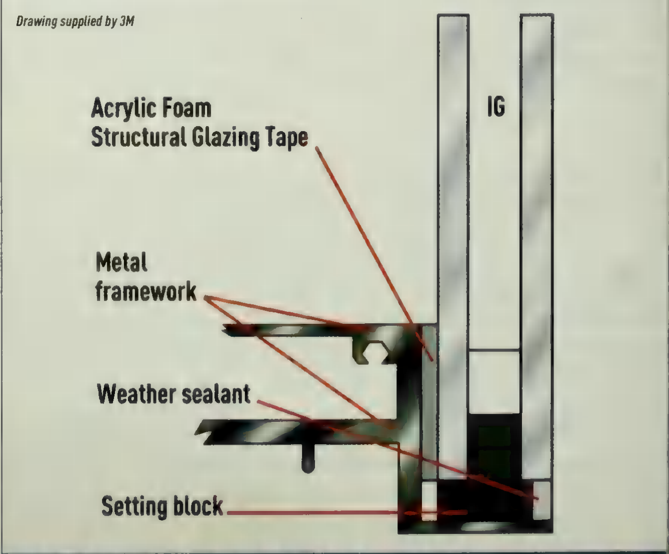
Viscoelasticity. Being viscoelastic in nature, the foam has the unique property of absorbing energy and relaxing stress at the bond line thereby providing bonding strength while protecting the bondline at the adhesive/substrate interface—and accommodating shear strain up to 300 percent of its thickness.

Resistance. One hundred percent closed cell construction forms a tight seal protecting against moisture penetration, dirt and chemicals, while its acrylic chemistry resists degradation due to ultraviolet (UV) exposure and weathering.

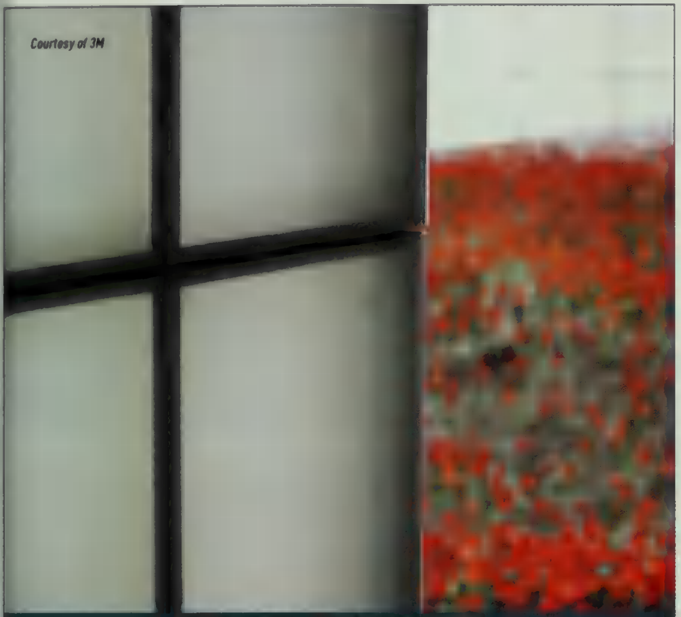
Productivity. Another feature of acrylic foam structural glazing tape is an advantage in overall productivity. In terms of materials-only cost savings, there is little difference between using acrylic foam structural glazing tape and conventional structural glazing materials. But in terms of productivity, waste factor, installation and clean-up time, there can be significant cost savings, time savings and more accurate forecasting of materials required. With structural silicone it is possible to have a messy waste factor of 10 percent to 25 percent in ensuring there is enough silicone to fill and overshoot joints.

Another feature of acrylic foam structural glazing tape is an advantage in overall productivity

Drawing supplied by 3M



Typical assembly configuration of structural glazing using acrylic foam structural glazing tape



Liberty Memorial Museum, 2006

Mixing two-part silicone in the correct ratio requires testing and operator time to achieve quality control because of silicone's reactive chemistry. It also requires expensive high-maintenance equipment. Acrylic foam structural glazing tape, on the other hand, is delivered fully cured, in pre-defined thickness and width, ready to use and typically incurs a waste factor of less than 5 percent. Another advantage is not having to allocate time for silicone clean up and equipment maintenance.

Perhaps the biggest advantage is the immediate handling strength of acrylic foam structural glazing tape over structural silicone. When panels are assembled in the plant, the silicone needs to cure before they can be oriented vertically or handle significant movement. In contrast, panels bonded with acrylic foam structural glazing tape can be immediately handled (typically 50 percent of the ultimate adhesive bonding strength is achieved after pressure application), so the panels can be moved with far less delay, thus freeing up both time and valuable storage and production space at the manufacturing plant.

It's important to note that there are many acrylic foam tapes available in the market place today. However, only fully tested and qualified acrylic foam structural glazing tapes should be considered for this demanding application. It is also important to have full technical support from a knowledgeable staff at the tape manufacturer when considering acrylic foam structural glazing tapes.

ACRYLIC FOAM TAPE PRODUCT INFORMATION

Adhesive	High performance acrylic
Adhesive Carrier	Conformable acrylic closed cell foam
Thickness	0.090 in (2.3 mm)
Tolerance	+/- 10 Percent
Density	45 lb/cu ft (720 kg/cu m)
Standard Tape Color	Gray or Black
Liner	0.005 in (0.125 mm) Red polyethylene film

Typical Acrylic Foam Structural Glazing Tape Product Information.
Note: This technical information and data should be considered representative or typical only and should not be used for specification purposes.

Appearance. Another significant feature is appearance. The conventional process of using spacer tape and silicone results in having two different materials side by side. Since the colors don't often match, the line between the materials is visible. The color of the silicone can also have a streaky appearance on occasion. In addition, there is the possibility that the silicone is not shot properly into the joint. In which case there is air entrapment or bubbles, which may be visible and worse, compromise the integrity of the joint.

First U.S. Application of Acrylic Foam Tape for Structural Glazing

Appearance was the driving force behind the decision to use acrylic foam tape for the first time in the U.S. for structural glazing. The Liberty Memorial, in Kansas City, MO., is a National Historic Landmark dedicated in 1921 to commemorate World War One. The new museum, designed by ASAI Architecture, (since merged with PGAV Architects) features an underground addition with the original memorial tower at its center.

The core of the underground museum is enclosed by a large glass drum wall, 300-feet in diameter, two stories high and made up of approximately 4-feet wide, 6-feet high, pieces of glass. Steve Abend, FAIA, principal and lead designer, explains that the entire drum is designed as a luminous translucent time capsule that rises out of the earth and appears to be going through the roof. Clad with laminated glass with a white inner layer, the drum glows and provides the only light for the entire lobby of the museum.

The glass is structurally glazed to a mullion system located out-of-sight behind the glass in an interstitial space for lighting and maintenance. Since he required the mullion system to be as invisible as possible, Abend wanted the joints to be white like the glass so it would read as a ghost. Since there was no white silicone sealant with the needed structural properties on the market, he selected white acrylic foam tape. In addition to being the correct matching color, the tape had the additional advantage of delivering very crisp lines. "The edges of the tape were all pre-cut so it was much more precise than we could have gotten from a sealant," reports Abend. By eliminating the sealant, which normally would have occurred between the glass pieces, he adds, it is now possible to see the crystalline edges of the glass.

Application of acrylic foam structural glazing tape involves no curing time, no liquid mess and less waste.

Benefits of Using Acrylic Foam Structural Glazing Tape for Structural Glazing

Performance
- Improved quality control because of consistent thickness and width. Product comes fully cured from the tape manufacturer
- Bonds and seals simultaneously.
- Provides uniform stress distribution along the bond line.
- Has proven durability as acrylic foam tapes have been in use for over 25 years.
- Foam dampens vibration and reduces acoustic noise.
- 300 percent shear strain capability accommodates differential thermal expansion and contraction.
- Viscoelastic characteristics give a proper balance of properties for reliability against wind, vibration and temperature changes.
- Resistant to solvents, chemicals and UV.
- Resistant to temperature cycling.
- Third party testing documentation. (ASTM Structural Performance Tests for Structural Glazing)

Productivity
- Immediate handling strength. Faster throughput and delivery.
- Reduces need for storage space since there is no cure time.
- Reduced number of components for structural glazing. Spacer tape or gaskets are eliminated.
- More accurate forecasting of materials required and therefore reduced overall costs.
- Eliminates need for mix/ratio testing.
- Minimal equipment required thereby reducing equipment maintenance costs.
- Relatively short learning curve for installation.
- Less waste compared with using structural silicone.
- Saves clean-up time.
- Reduced installation time.
- Tape can be cut to fit any length, shape, size or profile.
- Reduced labor costs because of less number of fabrication steps and faster process
- 100 percent nondestructive testing capability with a tape glazed system

Appearance
- Tape has clean crisp edge
- Design and appearance enhanced by virtually invisible fastening, which gives, smooth and clean look
- Uniform thickness creates repeatable results
- No color mismatch between structural silicone, spacer tape and gasket
- Color remains consistent from one end to the other
- Standard choice of colors – gray and black
- Smaller gap between frame and glass
- Tape bonds, seals and conforms to a variety of surfaces

"It saved us some money by eliminating the sealant," Abend says. "And we're told by the contractor that the erection-installation time was reduced. So it benefited the project with some modest cost savings. It benefited the contractor with some cost savings. And it gave us the look we needed for the project." As required with every acrylic foam tape structural glazing project., the tape manufacturer provided much technical support throughout the project—one example: sending a technical representative to the contractor's shop to train and demonstrate proper installation techniques that helped with quality control and reduced installation time.

Courtesy 3M

Philips Headquarters in Hamburg, Germany. Acrylic foam structural glazing tape was used to bond 2,400 glazed panels.

Specifications Best Practices

When evaluating new products for design and specification, architects should review available information carefully, including independent third party technical testing data documenting structural capacity, weathering capability, and longevity. They should investigate other installations and applications, as well as project types, testing performed, and the results. Other important considerations are installation procedures, appearance, direct and indirect costs, and warranties. Manufacturers should ideally provide technical advice and support for questions that may arise, especially during the design and construction phases.

When, in the late 1990s, Terry Bell, AIA, partner, Gehry Partners, LLP, began researching acrylic foam tape for bonding exterior stainless steel panels to stiffeners and aluminum frame for the Disney Concert Hall, he talked to users in other fields, did in-house research, laboratory testing, and built full size mock-ups. (He recalls the difficulty of removing the tape from panels when disassembling the performance mockup in Miami). The benefits of the tape, aside from its high bond strength, he says, include allowing for differential lateral thermal movement of the stainless steel panels and the aluminum sub-frame, preventing telegraphing of the framing locations onto the panel, and being able to handle materials immediately after bonding.

International Applications of Acrylic Foam Structural Glazing Tape

Acrylic foam structural glazing tape has many structural glazing applications across several continents in various climates and construction environments.

Since 1990, acrylic foam structural glazing tape has performed in hot and cool, high humidity and UV conditions in more than 2,500 projects in Brazil. Among them, a building for Aché, the largest pharmaceutical laboratory in the country, hotels, and office towers. It was used for an office tower in Guatemala in 1994 under similar climatic conditions, and in several projects in Mexico where pollution added to the challenges of heat and UV. In Austria's cold, hot and humid climate, the tape was employed on a project completed in 1999, and in Portugal, met Portuguese building codes for a tower constructed in 2002. Four major projects were completed in Israel in 2003. And in 2005, the tape complied with Germany's rigorous building code requirements for glazing 2400 glass panels for Philips Headquarters in Hamburg. ■

This article continues online at
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Program title: **"Acrylic Foam Structural Glazing Tape: A New Bonding Alternative," (05/07, page 263).** AIA/CES Credit: This article will earn you one AIA/CES LU hour of health, safety, and welfare credit. (Valid for credit through May 2009). **Directions:** Refer to the Learning Objectives for this program. Select one answer for each question in the exam and fill in the box by the appropriate letter. A minimum score of 80% is required to earn credit. **To take this test online, go to http://archrecord.construction.com/continuinged/default.asp**

LEARNING OBJECTIVES

After reading this article, you should be able to:

- Discuss the requirements for structural glazing for curtain wall construction.
- Explain the benefits and features of acrylic foam structural glazing tape for structural glazing systems.
- Describe performance testing of acrylic foam structural glazing tape for structural glazing.
- Compare and contrast structural glazing building practices around the world

Questions

1. Acrylic foam structural glazing tape is
☐ **a.** used to bond panels to trailers
☐ **b.** two-sided, pressure-sensitive, closed-cell acrylic foam.
☐ **c.** another name for spacer tape
☐ **d.** one-sided, pressure-sensitive, closed-cell acrylic foam

2. In structural glazing dynamic wind loads acting on the glass are transferred to the
☐ **a.** spacer tape
☐ **b.** silicone
☐ **c.** acrylic foam structural glazing tape
☐ **d.** perimeter structural support

3. Acrylic foam structural glazing tape for curtain wall glazing systems
☐ **a.** is an alternative for spot welds, screws and other mechanical fasteners.
☐ **b.** has been used in the United States for the past 25 years
☐ **c.** is an alternative for structural silicone and spacer tape
☐ **d.** is not resistant to chemicals, solvents and UV

4. Glazed curtain walls are
☐ **a.** classified by how they are built
☐ **b.** only available in pre-assembled units
☐ **c.** classified by how they operate
☐ **d.** available with only one type of glazing system

5. Compared with structural silicone, which is not a feature of acrylic foam structural glazing tape?
☐ **a.** Faster curing
☐ **b.** Faster clean up time
☐ **c.** Lower waste factor
☐ **d.** Increased installation time

6. Panels bonded with acrylic foam structural glazing tape can be handled
☐ **a.** after 50 minutes
☐ **b.** after 24 hours
☐ **c.** immediately after pressure application
☐ **d.** after 6 hours

7. Viscoelasticity describes materials that
☐ **a.** only flow like honey
☐ **b.** exhibit both viscous and elastic characteristics
☐ **c.** are hard and rigid
☐ **d.** do not exhibit time or force dependent strain

8. ASTM testing found measurable air infiltration and water leakage observed in
☐ **a.** laminated glass panels glazed with silicone
☐ **b.** tempered glass panels glazed with silicone
☐ **c.** none of the panels
☐ **d.** DGU glazed with acrylic foam structural glazing tape

9. Which of the following is not a feature of acrylic foam structural glazing tape used for structural glazing?
☐ **a.** Forms a uniform bond appearance with sharp edge lines
☐ **b.** Acts as the primary bonding agent and a secondary seal
☐ **c.** Allows flex and shock (energy) absorption
☐ **d.** Has no impact on noise and vibration

10. Curtain wall mock-up testing is
☐ **a.** mandatory in Singapore
☐ **b.** mandatory in India
☐ **c.** rarely practiced in China
☐ **d.** mandatory in the U.S.

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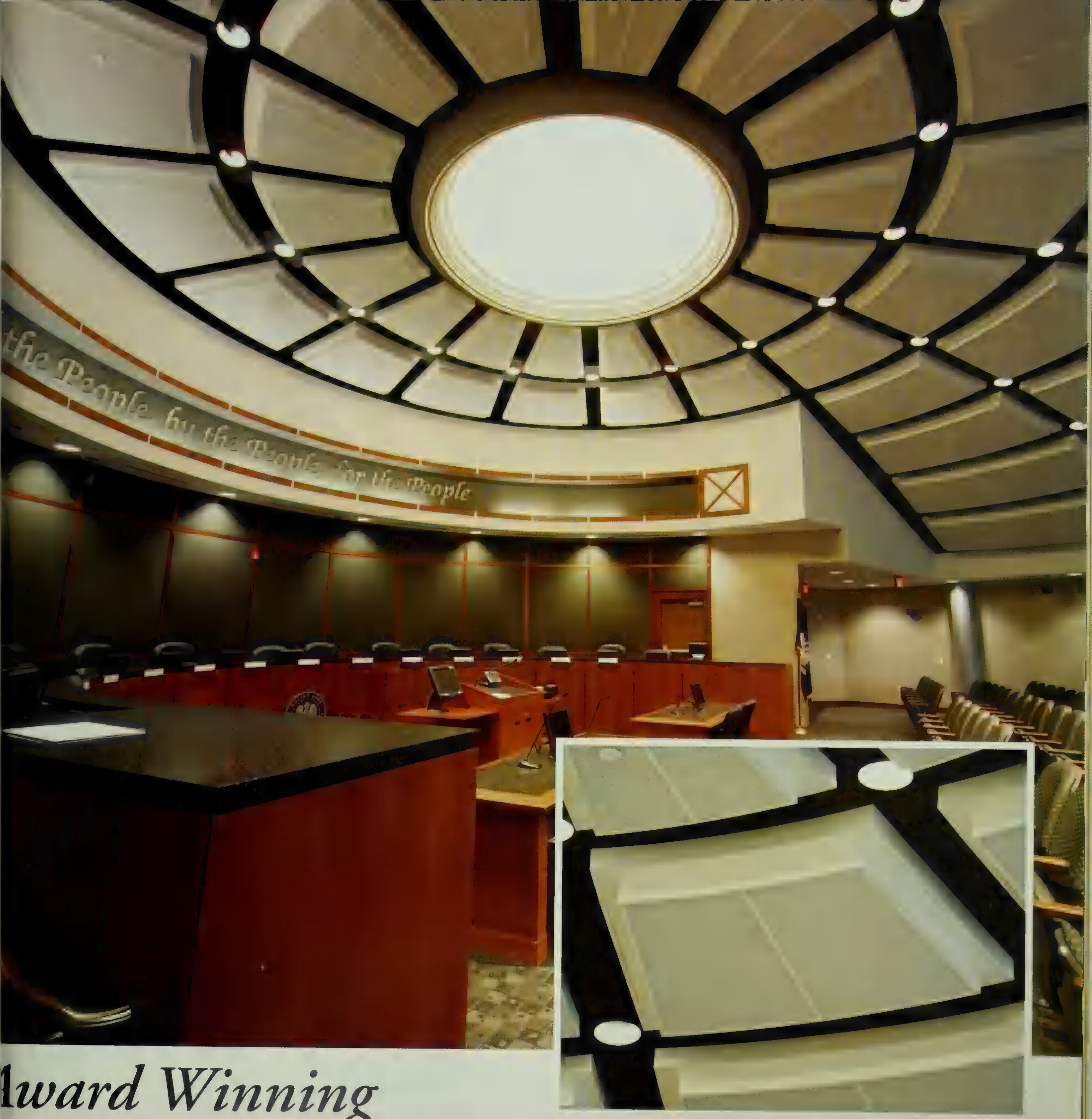

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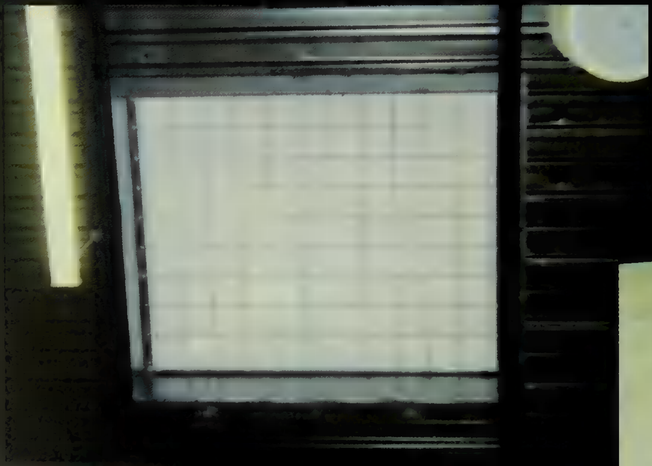

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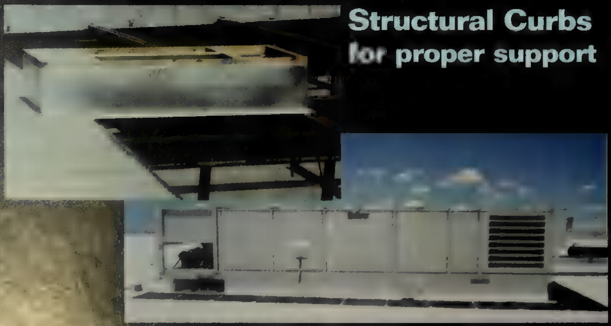

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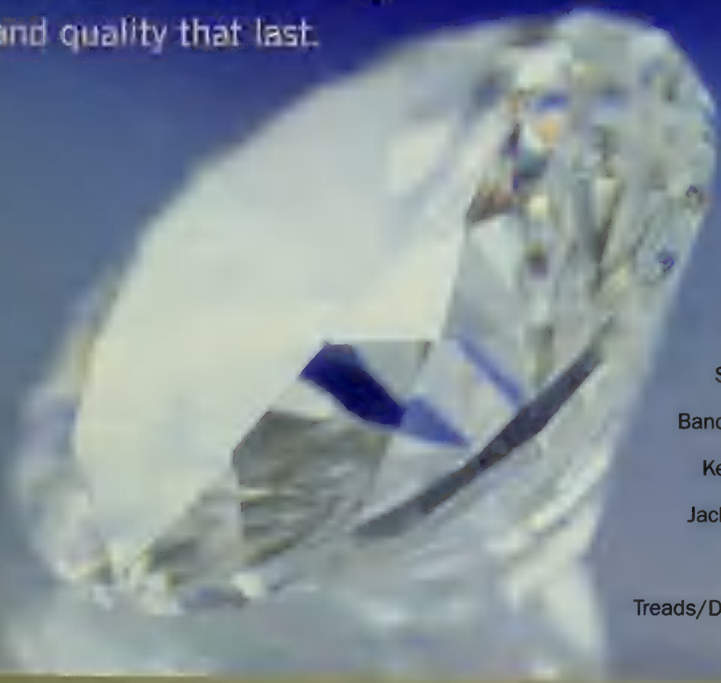

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Lighting

Working in three different scales, lighting designers titillate the senses

BRIEFS

Despite advances in making more stylish compact fluorescent lamps, consumers still resist giving up the look and color of their energy-guzzling incandescents. In February, GE Consumer Industrial announced that it had developed a **high-efficiency incandescent lamp** that rivals the environmental benefits of compact fluorescents. While initial production models should double the efficiency of standard incandescent lamps, the company says it can ultimately double that again. On the same day that GE unveiled its new technology, architecture mourned the loss of one of its leading lights, **Jules Horton**. The 87-year-old had founded Jules G. Horton Lighting Design, now Horton Lees Brogden Lighting Design, in 1968. He will be remembered for major commissions such as the Dallas/Fort Worth International Airport, Jeddah International Airport, and Tour du Crédit Lyonnais. Go to the archrecord.com News section for a commemoration of Horton's life and career. To look into the future of urban lighting design, mark your calendars for May 23 and 24, when Philips Lighting hosts the **city.people.light** forum in Rotterdam, the Netherlands, in conjunction with the city's Year of Architecture. Participants will explore lighting designers' role in establishing a city's identity, preventing crime and vandalism, promoting tourism, and enriching urbanites' quality of life in general. For those lacking the frequent-flyer points to make the trip abroad, turn to page 215 to find out how SWA Group reclaimed a key amenity in downtown Houston and lighting designer L'Observatoire International gift-wrapped it in an illuminated bow. *D.S.*

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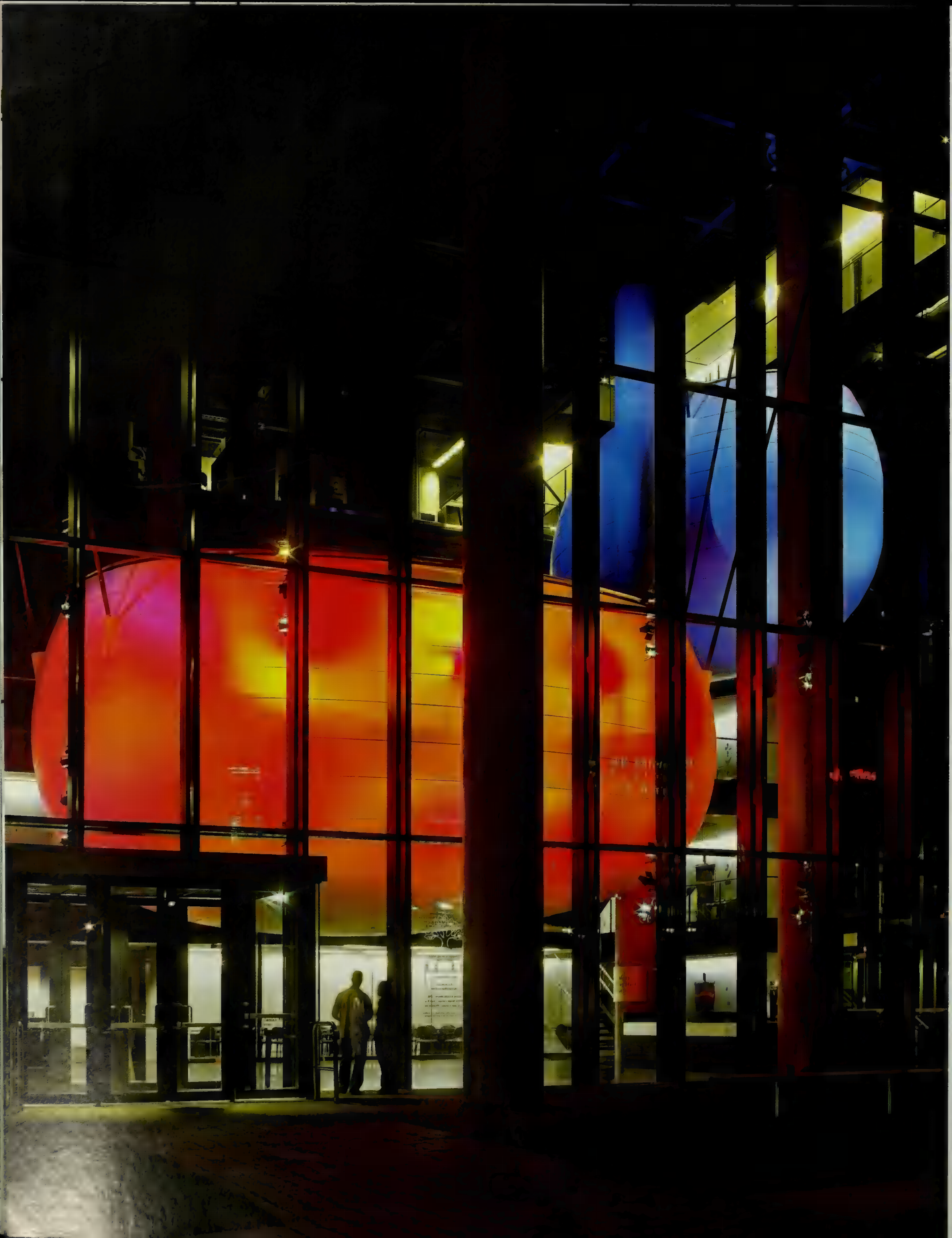
On a warm June evening last year, 10,000 well-wishers gathered at the banks of Houston's Buffalo Bayou to celebrate the opening of the Sabine-to-Bagby Promenade. The event was not intentionally planned to coincide with the full moon, so when it appeared, it was as if nature had conspired to put on a show.

It was a fitting occurrence for this 23-acre park, in which lighting designer L'Observatoire International looked to mother nature as a collaborator. Path lights, for example, cast orbs of LED-generated colors that correspond with the lunar cycle. The effect is as stunning as the 300,000 plants carefully chosen by landscape architect SWA Group, and breathes new life into Houston's originating waterway. Where floodwaters would deposit harmful sediment, now art films are projected on a barge. Where homeless people had slept beneath overpasses, families stroll past muscular columns illuminated in sapphire blue.

While the Buffalo Bayou project exemplifies the power of light to communicate security and poetry in an urban environment, a Singapore nightclub's lighting and interior design meld seamlessly to create an alternative transporting experience. The Clinic, a joint project between the Amsterdam architecture firm Concrete and local lighting designer avoKinetix, pushes revelers beyond their personal safety limits.

The Clinic would be the kind of hospital you'd imagine after inhaling. Its jumble of rooms features all kinds of footprints, materials, and colors that represent different medical conditions and their treatments. The lounge dubbed Delusion is shown here, but the dizzying array of experiences is well suited to the person seeking refuge from the order of Singapore's conservative daily life.

The hard-core pleasure seekers at The Clinic may someday seek treatment from students now attending class at the Leslie L. Dan Pharmacy Building at the University of Toronto. Luckily, these Canadians don't have to travel to Singapore to see great design. Their new academic home's lighting scheme, by designer Claude Engle IV, of Claude R. Engle, Lighting Consultant, and Lighting Design Solutions/HH Angus, flatter suspended pods by architect Norman Foster in an array of colors. Although their orchestration is dramatic, Engle remarks that the project affordably deploys common theater equipment for big impact—perhaps a reminder to students to choose generics over brand names. *David Sokol*



For the **Leslie L. Dan Pharmacy Building,** Claude Engle bathes floating pills in an array of trippy colors

By Tim McKeough

At the Leslie L. Dan Pharmacy Building at the University of Toronto, Foster + Partners has turned contextual design on its head. Situated on a grassy lot at the intersection of College Street and University Avenue, the academic tower is located adjacent to the school's historic Tanz Building. "We looked at the program and decided that instead of aligning the top of our building with the Tanz Building, it would be more interesting to play an inverted game and create a void," says Nigel Dancey, senior partner at Foster + Partners. As a result, much of the building's bulk is raised on concrete stilts, leaving room below for a transparent glass cube precisely the five-story height of its neighbor.

Within the large, open void, the architects decided to suspend two massive classroom pods that they hoped would look as though they were floating on air. Working in collaboration with Chevy Chase, Maryland–based lighting firm Claude Engle, it didn't take long for all involved to realize they could make the lozenges the building's signature feature by illuminating them at night with a show of shifting hues.

"We had this idea of theatricality, which explains the colored lights," Dancey says. "Claude Engle III [the firm's founder] and his son Claude Engle IV had both been very involved in theater design and knew about using gels and mixing colored lights to create some interesting effects." The resulting display is managed by a preset computer-controlled-dimming system that changes the colors every 15 minutes throughout the night.

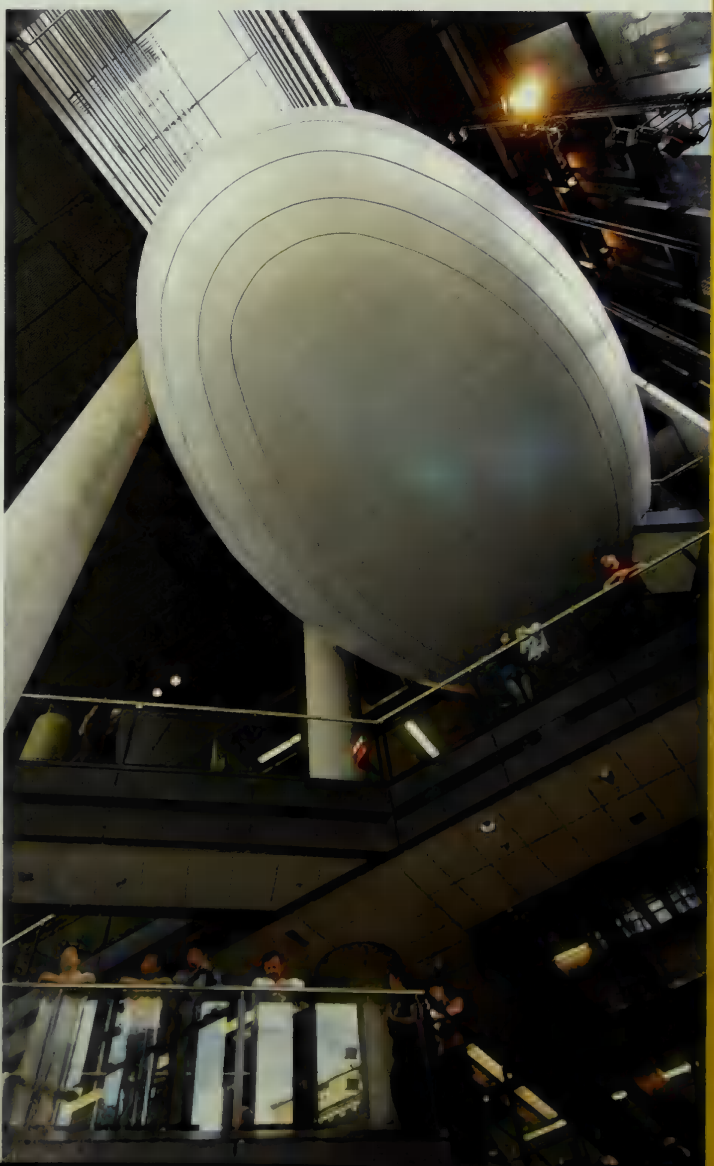
The team, led by Claude IV, originally thought about lighting the pods with concealed luminaires around the perimeter of each bulbous behemoth, but realized it couldn't work. As the younger Engle explains, that would have required attaching luminaires to Foster's glassy skin, which "would make the mullion become this fat thing" and muddle the architects' intentions. Instead, Engle's firm decided to use 128 actual 375-watt and 300-watt quartz halogen lamps in fixtures commonly used in theatrical lighting, attaching the plug-in lights to black theater pipes with standard C-clamps.

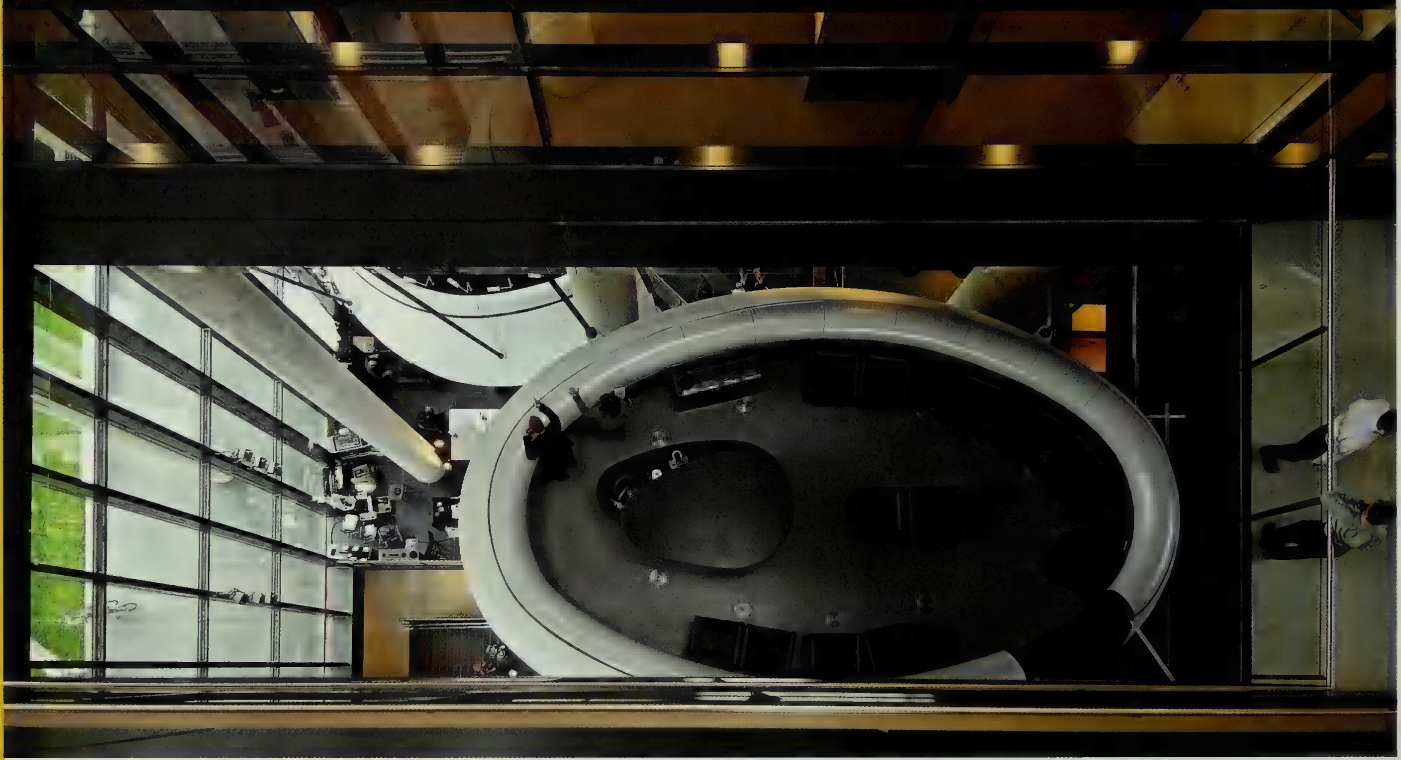
Thanks to the theater technique, "you can move these lights up and down for a totally flexible system," says local lighting consultant Kenneth Loach. Moreover, "The lights themselves become part of the experience," Claude III notes, adding that the team selected colors that were more sophisticated than those favored by local dramaturges: "It's the difference between something that looks like a champagne fountain and

Tim McKeough is a New York–based journalist who writes about architecture and design for Wired, Metropolis, Azure, *and* The New York Times.

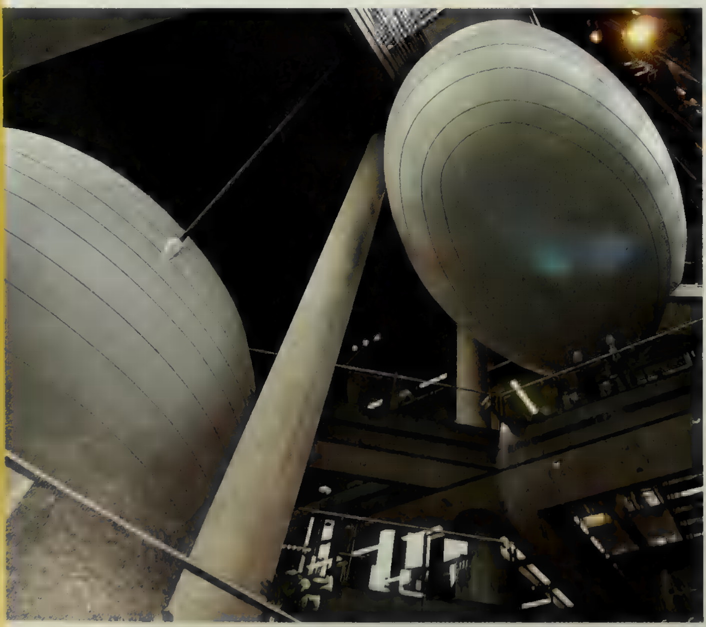
Project: *The Leslie L. Dan Pharmacy Building, Toronto*
Lighting designer: *Claude R. Engle, Lighting Consultant—Claude R. Engle III, founding member; Claude R. Engle IV, project designer*
Local lighting consultant: *Lighting Design Solutions/HH Angus—Kenneth Loach, principal*
Architect: *Foster + Partners—Norman Foster, David Nelson, Nigel Dancey, Stephen Best, Luis Matania, James Barnes, Danny Shaw, Pietje Witt, Joost Heremans, project team*

Two pods suspended within the Leslie L. Dan Pharmacy Building atrium (below) are illuminated by fixtures associated with theater lighting (opposite). Fluorescent lighting rings the 7-story upper volume (left).





The building provides facilities for more than 1,000 students; undergraduates attend classes in the lower floors and graduate research takes place above. The larger pod includes a 60-person lecture hall and a reading room. A 24-person classroom occupies the smaller form, which is topped by a faculty lounge that opens to the atrium (above).



something as elegant as an educational building ought to be," he says.

The lighting designers mixed primaries, outfitting luminaires with Apollo dichroic filters held in place by frames. At dusk, the pods perform a metaphorical sunset, exchanging fiery reds and deep blues. They then proceed to a sequence of blues, yellows, and greens in a deliberately tight palette; colors introduced on the underside of one pod are later introduced in its mate. The theater lights are outfitted with borosilicate glass lenses with four beam spreads ranging from very narrow to wide flood, and are supplemented by 1,000-watt quartz theatrical flood fixtures.

The building takes an equally inventive approach to daylight. An atrium slices vertically through the core of the 12-story structure, pulling sunlight deep inside. To balance concerns about solar heat gain with the desire for natural light, Foster's team covered the glazing on the south elevation of the glass cube with a large-dot frit pattern. The density of the frit pattern gradually decreases along the eastern elevation before opening up to mostly clear glass on the northern facade, where offices look out over Queen's Park, the home of Ontario's legislature.

In the offices and hallways lining the perimeter of the upper volume, "The fairly high window system allowed us to put in wall-wash lighting that is concealed and less expensive," Claude senior says. Off-the-shelf fluorescent T8 luminaires were inserted in architectural coves, which delineate the building edge at night. "You can see how the floor plates start and stop," his son adds. To reinforce the geometry of the interior architecture, the lighting consultants also integrated LEDs into the handrails of bridges and hallways that connect the labs, offices, and pods.

"This is an example of a very economic solution that's quite spectacular," says Claude III. "The building helps the lighting, and the lighting helps the building," a success he attributes to collaborating with the architects on myriad projects. "We've done so many things together that we almost know how to finish each other's sentences." ■

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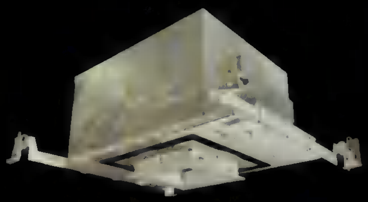

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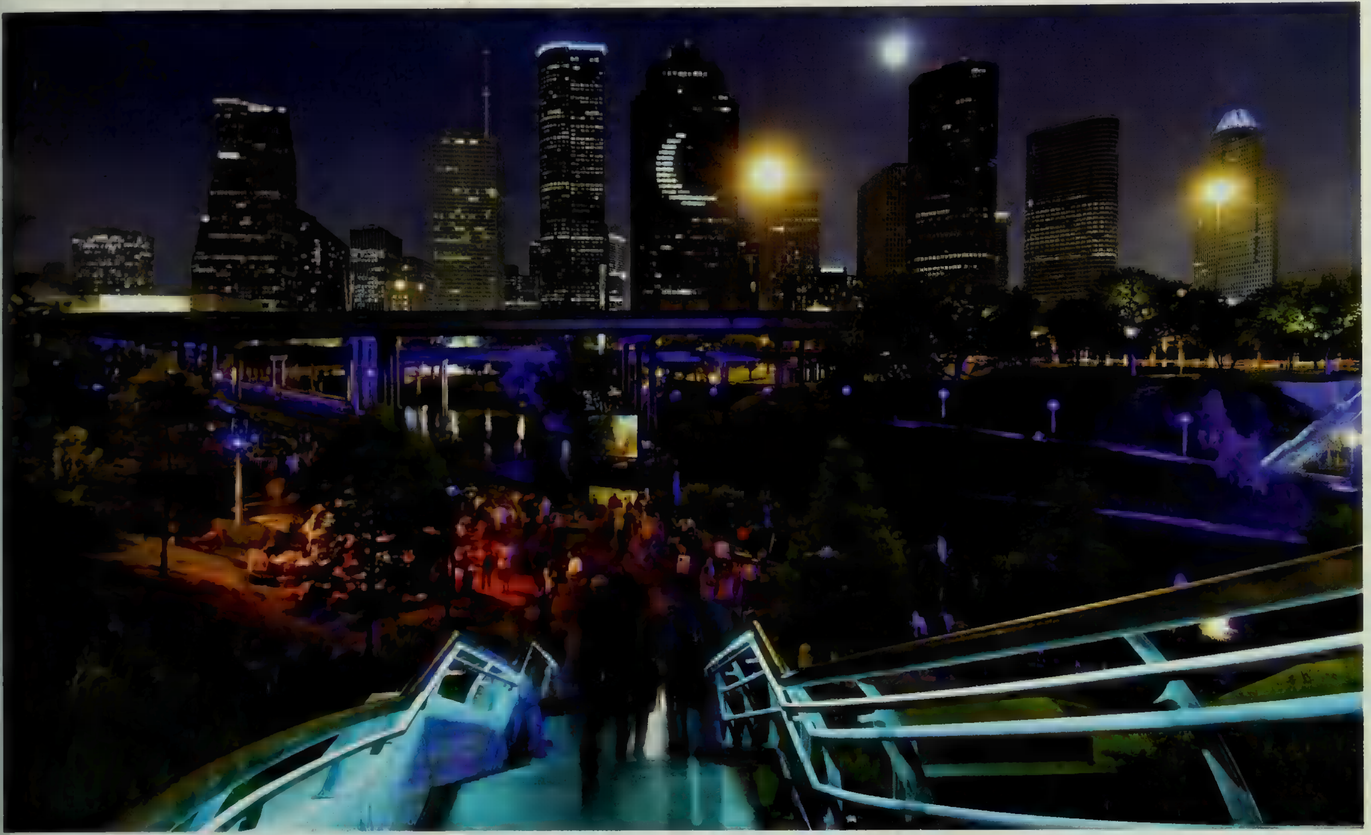


L'Observatoire International transforms a neglected stretch of Houston's **Buffalo Bayou** into Moon River

By David Sokol

Until recently, Houston's meandering Buffalo Bayou waterway had been a camera-ready place—if you were using a long-range lens. "What makes this site really impressive is its view of the downtown skyline," says Anne Olson, president of the Buffalo Bayou Partnership.

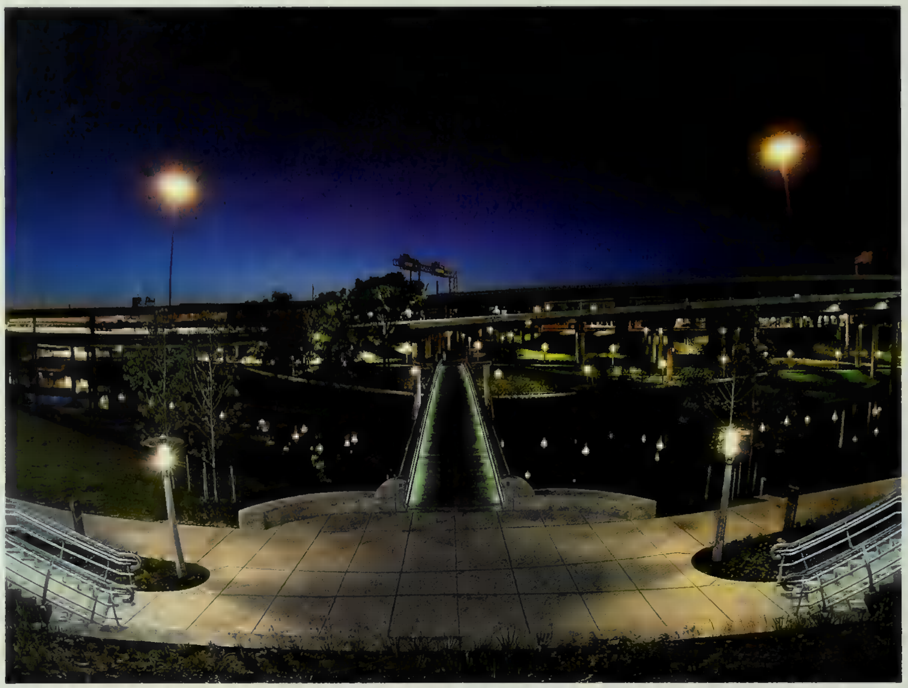
The body of water was another story. Container ships' deep-water requirements had forced port uses to relocate to Galveston, and the bayou was only halfheartedly converted to a public amenity. Flooding from tropical storms eroded walking trails and bicycle paths, and non-native plants had invaded the remaining terra firma. Moreover, the city street grid and elevated Interstate 45 obscured views of the park to potential users above. Homeless people inhabited the raw infrastructure below.

Now the bayou is ready for its close-up. Twenty-three acres of this landscape, known as the Sabine-to-Bagby Promenade, was recently given a $15 million overhaul as part of a 20-year-long master plan first released in October 2002. The site was reimagined by landscape architect SWA Group, and thanks to convincing by arts consultant Stephen Korns, the funding originally earmarked for public art was mostly channeled into a lighting plan by New York–based lighting design firm L'Observatoire

L'Observatoire's lighting plan for Buffalo Bayou features a multilayered approach to various park elements.

Project: *Sabine-to-Bagby Promenade, Houston*
Lighting designer: *L'Observatoire International—Hervé Descottes, Zac Moseley, NatHalie Barends, Peiheng Tsai, project team*
Architect: *SWA Group—Kevin Shanley, principal in charge*

David Sokol is a New York–based freelance writer.



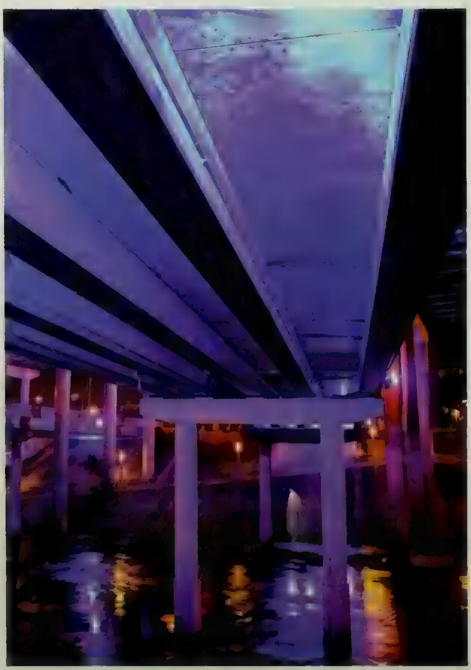
Integral LEDs highlight pedestrian access; pole-mounted downlights illuminate paths; and stadium floods shine a blue wash on urban infrastructure.

International. Besides casting the park in a flattering light, L'Observatoire's multilayered scheme reconnects city dwellers to the nature at their doorstep.

Principal Hervé Descottes, recalling his first site visit in 2001, says, "The first need was obvious, the need to bring the park to the height of the city." Without a well-conceived intervention, Descottes feared the park would be fated to the same high-pressure sodium lamps as the nearby highway, forcing it into obscuring sameness.

L'Observatoire devised several means for grabbing the attention of passersby. Access ramps and stairs include LEDs embedded underneath handrails to guide nighttime eyes toward the bayou. In addition, incandescent uplighting in the trees "gives more life to the plants," Descottes says. While the uplighting is meant to differentiate the green trees from the surrounding high-pressure-sodium-orange haze, Descottes admits that the effect is subtle: "It's to have a bit of an undiscovered feeling."

A romantic scene unfolds upon descending the access routes. Inspired by the historic outdoor leisure spaces of Paris—where Descottes lived until 1993—and London, the L'Observatoire team dotted the paths with pools of warm light, which also enhances a sense of security. The lamps are installed with a glass diffuser specifically chosen so that pedestrians can discern the shining filament; they are dimmed to enhance the old-time effect, and, Descottes adds, to extend the lamps' life spans.



The path lights are housed in submersible casing and mounted in a precast-concrete pole designed by SWA. Besides holding the incandescent downlight, its top is embedded with 20 white LEDs and 20 blue LEDs. The luminaire creates a halo of light whose color corresponds with the lunar cycle. An integrated control panel developed by Cooper Perkins synchronizes the poles so that the park is uplighted entirely in white for the full moon, transitioning to all blue for the new moon. When blue LEDs are activated beneath overpasses, stadium-size GE luminaires attached to the bridge columns turn on as well, flooding the gritty urban structures in a transcendent blue.

Descottes explains: "In the city after dark, you normally turn the switch on at dusk and turn it off at sunrise. There's no sense of time, no sense of direction, and the light drowns out our connection to the stars." Choreographing the LEDs allows park users to stargaze during the new moon, because they can see beyond the blue light. Moreover, he adds, "Every night you can go to a place and feel that it's different."

"You could include the city in the whole vision of the park," Descottes notes of the Sabine-to-Bagby Promenade's lunar ballet. The effect has been so hypnotic that Descottes's wish may come true. The Buffalo Bayou Partnership is expanding the light plan, and Olson reports that a new, unrelated downtown park initiative is adopting similar blue lighting. Soon, the city that signifies America's exploration of outer space may improve its view of the night sky. ■

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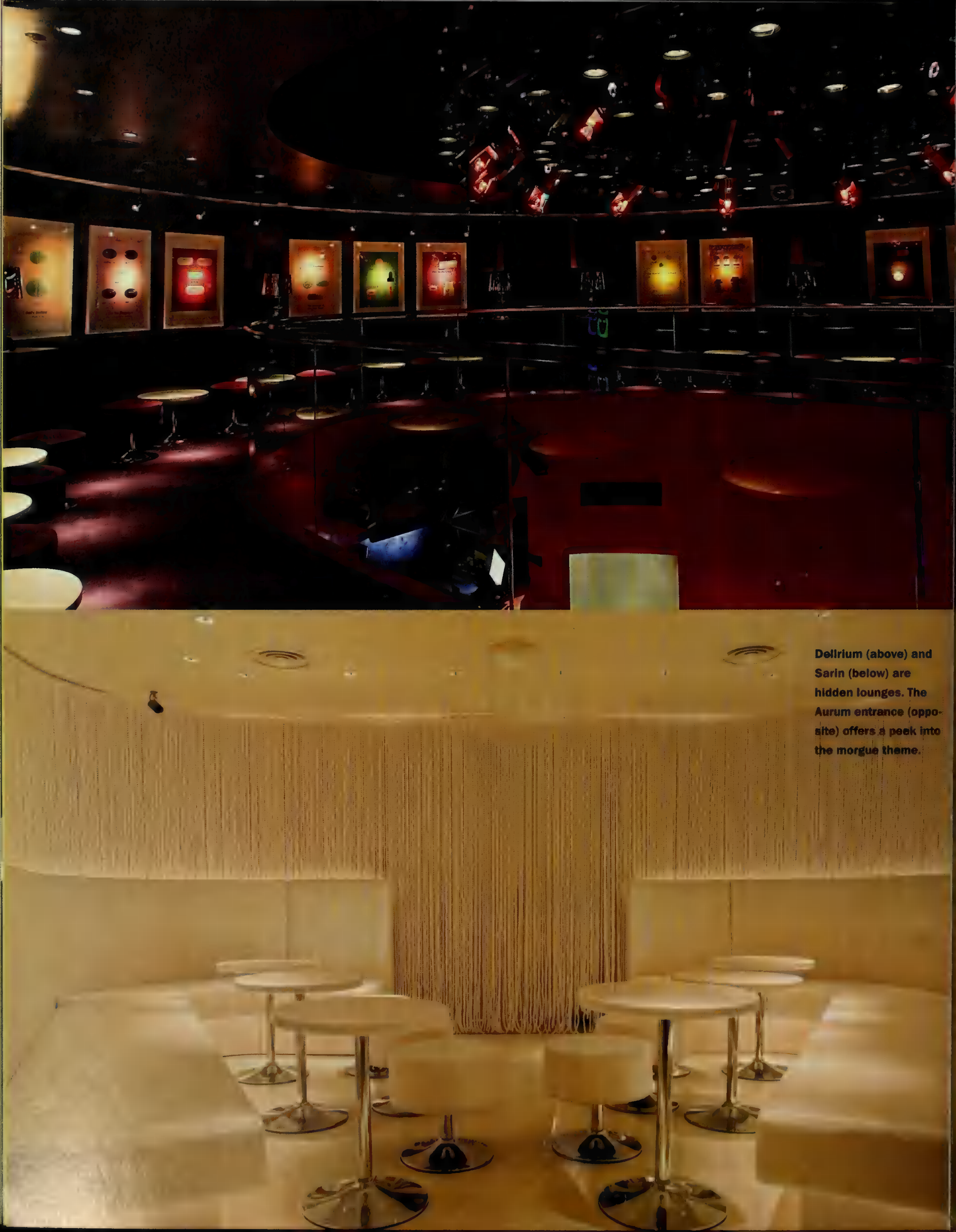


Delirium (above) and Sarin (below) are hidden lounges. The Aurum entrance (opposite) offers a peek into the morgue theme.

At Singapore's **The Clinic,** dramatic lighting by Concrete and avoKinetix transports club kids to new highs

By Ruth Altchek

In Singapore, where seemingly innocuous gum chewing can be prosecuted, a nightclub with an explicit drug theme seems impossible. But after locals shook off the initial stun, they now escape in droves to The Clinic, a macabre, hospital-themed playground designed by Amsterdam-based architect Concrete that taps into the city's work-hard-play-harder culture. The concept of this 6-month-old venue comprises a labyrinth of 13 pill-shaped rooms, each illuminated in distinct ways to heighten that room's particular theme or "side effect," as the architects put it.

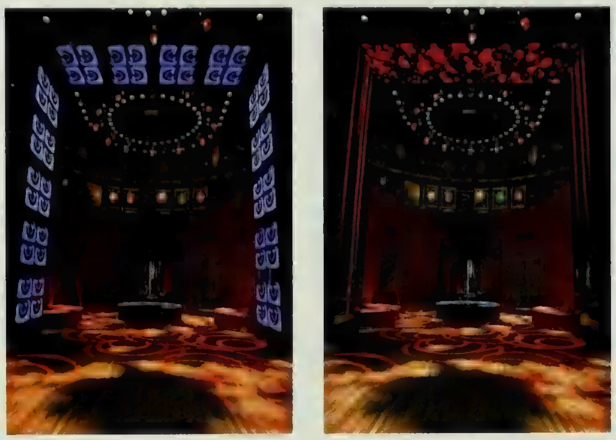
LifeBrandz C.E.O. Clement Lee supplied Concrete with the name The Clinic, and a desire, he says, "to push the limits in a rather conservative society." Concrete's imaginative designers ran with it. "Our idea is that you go to a clinic, you are sick. Here, you are already feeling good," lead designer Joris Angevaare says. "This clinic has to make you feel even better." Angevaare and his associates threw a handful of pills onto a blank sheet of paper, did a little rearranging, and the floor plan was born. Concrete is an old hand at the nightclub/restaurant hybrid, with its wildly successful designs for Supperclub in Amsterdam, San Francisco, Rome, and Istanbul. While Angevaare argues that The Clinic is a departure from the Supperclub format, it shares the same ambitious edginess.

The 15,000-square-foot interior is divided in two: the ground-floor bars and dance club, featuring spaces named after medicines, and the upstairs VIP lounges and restaurants, named after states of mind. The lighting, too, offers multiple layers of experience. For the club's main space, a 730-square-foot, capsule-shaped dance floor called Morphine, Concrete called in local lighting designer Jesmend Tham, principal of avoKinetix, to design a truss-system lighting rig based on Concrete's specifications. The rig is suspended from the upstairs Delirium lounge, which forms a mezzanine above Morphine. Following Concrete's suggestion for simplicity, Tham ringed the armature with adjustable-focus fresnel luminaires, bathing the seating of Delirium as well as the Morphine dance floor in warm halogen light.

Morphine's main event is a massive arch lined with computer-controlled LEDs. The denseness of the LED surface—the diodes are spaced 1 centimeter apart in a grid—produces a videolike effect. Tham and Lee created the imagery for the screens, a rotating program that includes creepy Big Brother eyeballs that canvass the dance floor, and trickles of blood that eventually "drip" down the sides of the arch. The LEDs are dimmed to 50

Project: *The Clinic, Clarke Quay, Singapore*
Lighting designer: *avoKinetix—Jesmend Tham, principal*
Architect: *Concrete Architectural Associates—Rob Wagemans, Joris Angevaare, Erik van Dillen, Melanie Knuwer, Onne Walsmit, Ulrike Lehner, project team*
Sound designer: *Pure Fusion Systems—Austen Derek, principal*

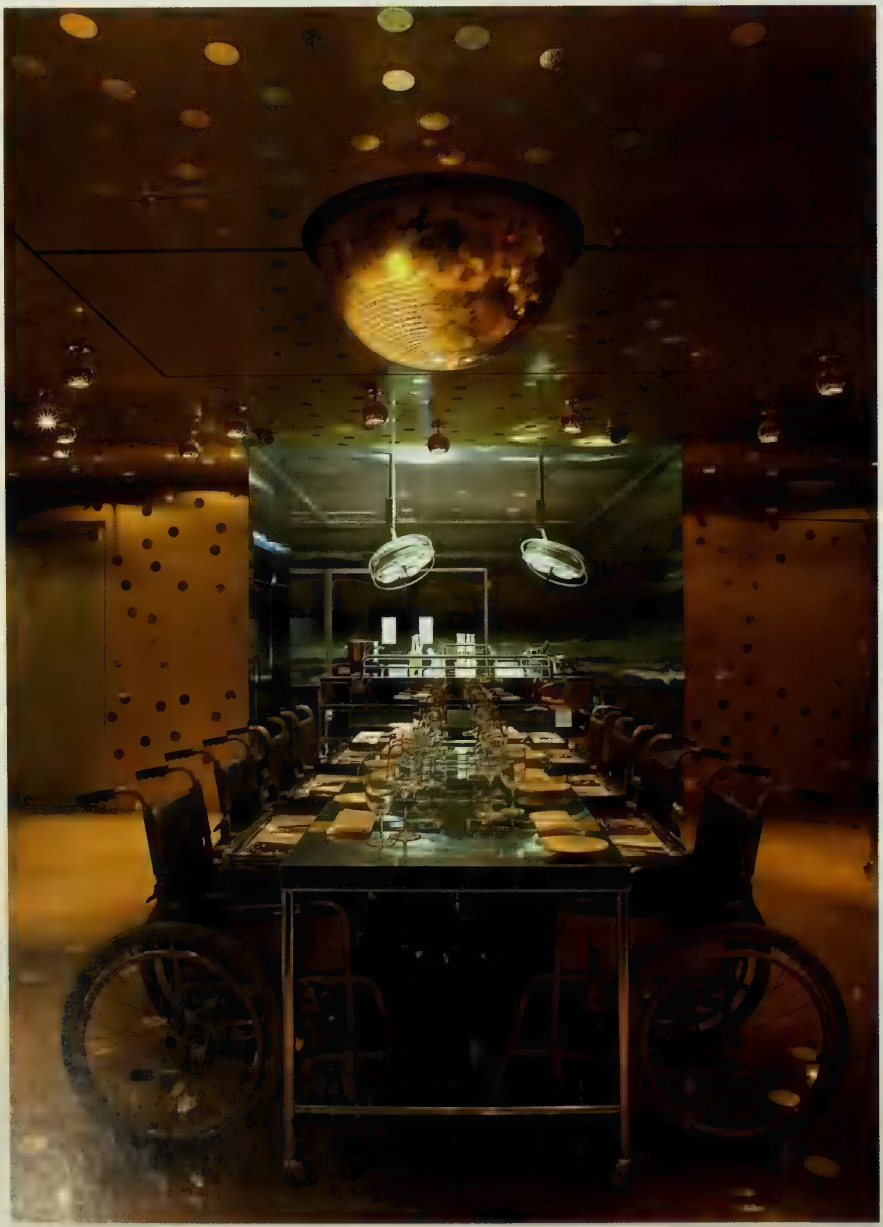
Ruth Altchek is a senior editor at Domino *magazine.*



percent "to make it a little bit more sexy," Angevaare says.

Despite these high-end touches, affordable halogen spots and LEDs imported from China constitute most of The Clinic's ground-floor light plan. "It's really just lots of different halogen downlights and LED snake lights underneath every surface and behind every seat, producing a glowing effect," Angevaare says. Two rooms branching off of Morphine showcase the team's skill at using ordinary lights to transformative effect. Visitors entering the semicircular barroom called Anthrax perceive it as fully round thanks to a mirror that reflects floor-mounted uplights. In the rainbowlike bar, called Caffeine, LEDs encased in multicolored acrylic glass bands seem to breathe as the stripes pulsate in intensity; the lights are programmed in DMX, the same theater-originated control system used for the arch in Morphine.

Upstairs plays host to two striking dining rooms, Aurum and Phobia. After passing through the entrance—a morguelike room complete with stainless-steel surgical tables and lamps—diners proceed into the glittering gold pill that is Aurum. Surface-mounted halogen sphere luminaires dot the walls and ceiling, which are covered with gold automotive paint, casting the beams of light in a warm yellow. "We really didn't want too much white, which makes everything look flat and dead—even in the morgue," Angevaare jokes. Aurum's centerpiece, hovering above the surgical-cum-dining table and two rows of golden wheelchairs, is a custom gold-plated disco ball illuminated by PAR 36 pin spots. After dinner, the room is transformed into a private dance space, the ball is lowered, and the ceiling opens to reveal a spectacular motorized lighting rig.



The main dance floor of Morphine has a massive LED-lined arch that displays varied illumination (above). Aurum diners commune at a long surgical table beneath a starry sky of ceiling-mounted halogen spheres (left).

In the adjoining triangular-shaped dining room, Phobia, a simple LED-studded snake light crawls behind the banquettes, illuminating the matte black wall to reveal glossy black decals listing every known type of phobia. The sumptuous tufted velour ceiling is dotted with subtle halogen downlights surrounding the spidery Dear Ingo chandelier designed by Ron Gilad for Moooi, which adds to the luxuriously threatening atmosphere.

How the drug theme will wear as Singaporean society becomes more permissive (medicinal chewing gum became legal in 2001) remains to be seen. For his part, Lee is confident that The Clinic has a strong pulse. He compares the club's design brief to the work of Damien Hirst, whose "expression of medical and taboo themes" is more shockingly stylish than awesomely tacky. It's fitting, then, that Hirst's prints line the walls of The Clinic. Here, a team of provocateurs have elevated an idiosyncratic idea for a nightclub to a work of art. ■

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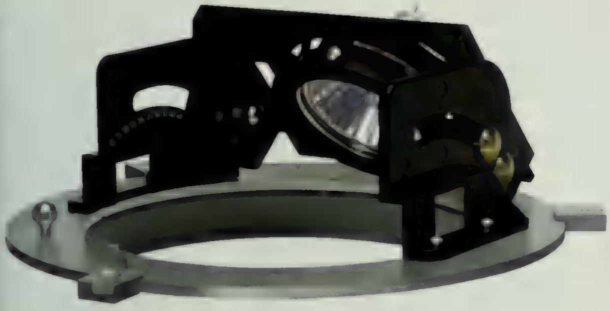

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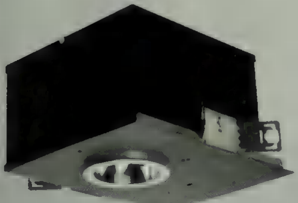

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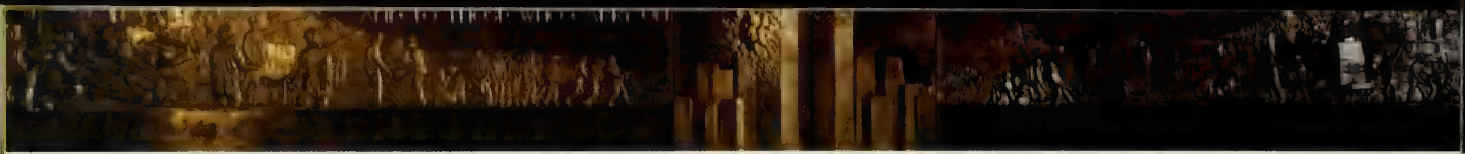

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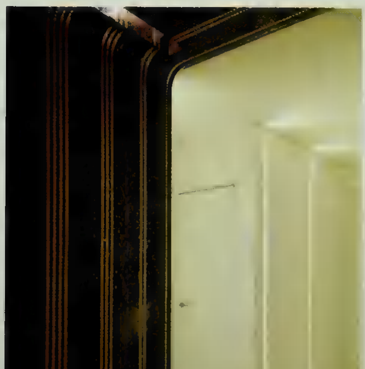
◄► Lighting, old-school style

Crafted by artisans using old-world techniques, Baker's Collector's Edition of lighting includes six striking chandeliers, pendant lamps, and hanging lanterns; two elegant sconces; and nine table and floor lamps. Many of the lights make use of hand-blown glass and distressed materials such as tarnished nickel or aged pewter. Shown here are the Urban Smokebell lantern (right) and the Parker Webbed sconce (left). Baker Furniture, Kohler, Wis. www.bakerfurniture.com **CIRCLE 212**

◄ Feminine floor lamps

Jean-Marie Massaud's new lamp collection for Poltrona Frau is hand produced by glass masters from Murano, Italy. The collection's two table lamps and two floor lamps are molded from transparent, sinuous shapes. Above its varnished metal base, the Fede lamp (far left) wears a necklace of glass bubbles down its stem and a square ivory shade. The glass outer stem of the Holly lamp (near left) suggests a woman's torso, and is topped by a circular ivory shade. Poltrona Frau, New York City. www.poltronafrau.it **CIRCLE 213**



► Lucky slots

Designed by architect David Chipperfield, Slot is a series of indirect recessed fixtures for walls and ceilings. Ideal for private or public spaces where a noninvasive lighting effect is required, the fixture comprises a matte-white epoxy-powder-coated metal structure housing one or more dimmable fluorescent bulbs. Magnets keep the cover in place, making mounting and maintenance easier. A dimmable electronic power supply can be mounted with or without its housing. FontanaArte, New York City. www.fontanaarte.com **CIRCLE 214**

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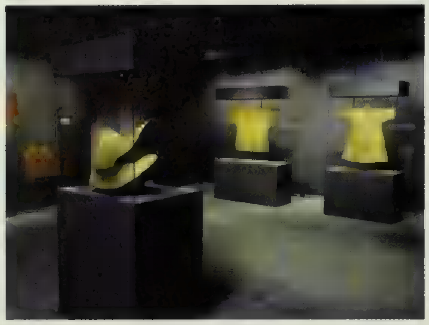

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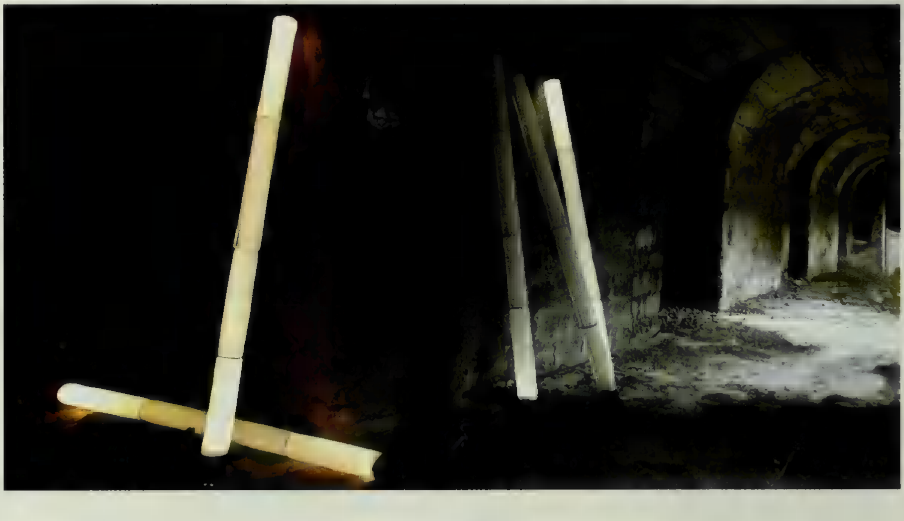
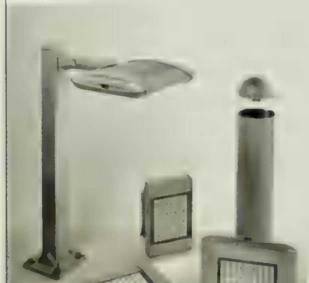
▼ Sticks of light

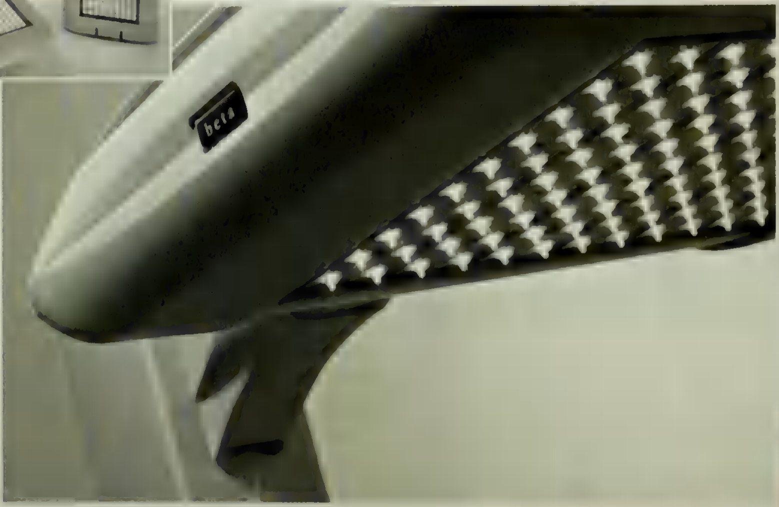
The Italian lighting manufacturer Italamp works with leading product designers and architects such as Carlo Colombo, Claesson Koivisto Rune, and Matteo Thun to create fixtures that work like functional pieces of art. Paola Navone's Bamboo lamp series for Italamp replicates, in oversize, the nodes and textures of its namesake. The floor-, table-, and wall-lamp options all feature diffused light and come in a range of scales: The 86"-high floor lamp version (shown) has a 4" diameter; the 5"-high wall lamp measures 3" wide x 3" deep; and the 24"-high table lamp has a 14" diameter. According to the manufacturer, the fixtures are U.L.-listed for specification in the United States. Touch Design, Cadoneghe, Italy. www.touch-design.it **CIRCLE 215**





◄▼ Outdoor fixtures with optimal LED output

The Edge line of LED luminaires for general outdoor illumination will be available from Beta Lighting starting this June. The line, completely manufactured in the U.S. includes area, canopy, parking-structure, bollard, and wall-pack fixtures. The design of the direct-contact refractor optics, called the NanoOptic system, results in a fixture efficiency of over 85 percent, a number beyond the typical 70 to 75 percent efficiency of an HID fixture. Beta LED, Sturtevant, Wis. www.beta-lighting.com **CIRCLE 216**



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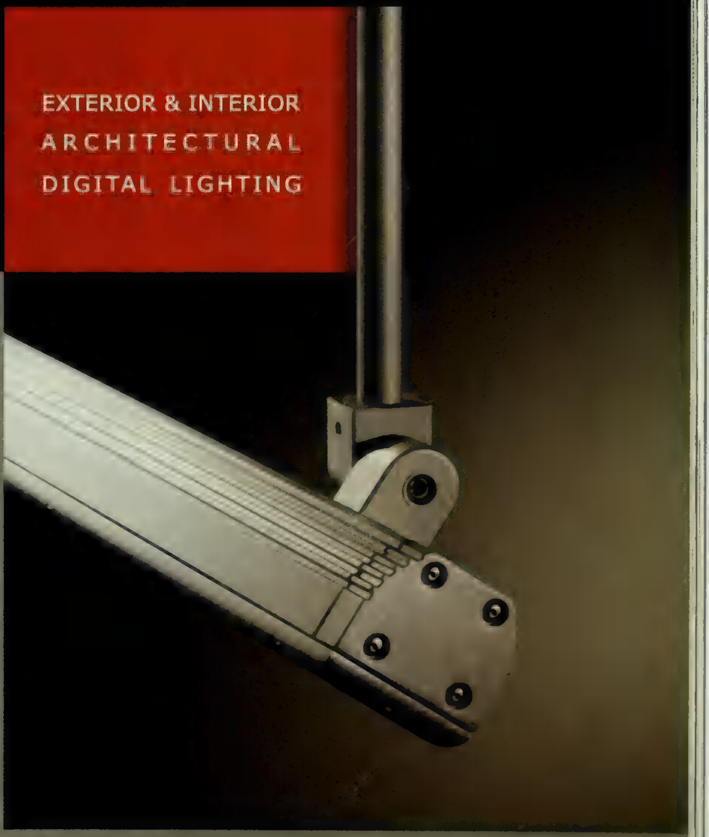

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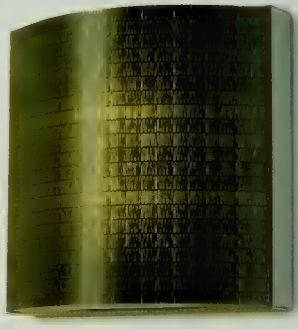
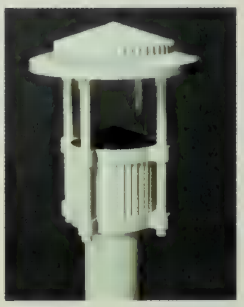
► ADA-compliant sconce

Designed by Douglas Varey, David 5 is an ADA-compliant, compact fluorescent wall sconce. The shade is made from Imago, an engineering resin (PETG) encapsulating fine fabrics from Knoll Textiles. RAL system power-coat colors are available for the metal enclosure. Other finishing options include wallpaper wrap and wood trim. The fixture mounts to typical J-boxes (on center) or can be mounted directly to wall/cabinet surfaces. An opal acrylic end closure is available. Resolute, Seattle. www.resoluteonline.com **CIRCLE 217**



▲► Light won't bounce up



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▼ Light as air

The Office Air task light from Nimbus can be used in rooms as a standard lamp, a pendant fitting, and a desk lamp. Conceived by architect Stefan Behnisch together with Nimbus's managing director Dietrich Brennenstuhl, the high-grade chrome-plated surface integrates discreetly into existing furnishing systems. An occupancy control option helps save energy, while a microcoated acrylic glass removes glare. Nimbus Design USA, Venice, Calif. www.nimbus-design.com **CIRCLE 218**

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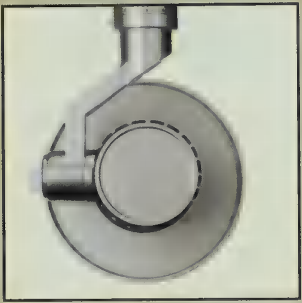

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Q&A WITH KIM SHINN

USGBC Board of Directors
Southest Regional Council

Kim Shinn
Principal & Director of Sustainable Design at TLC Engineering and a founder of the Middle Tennessee Chapter, was recently elected to represent the Southeast Regional Council on USGBC's national Board.

Why are USGBC chapters important to the future of green building?

The real change and progress in energy efficiency, carbon reduction, and environmental protection is happening at state and local government levels. And the real change in design and construction practice will take place in individual firms.

Chapters need to be active in local advocacy and policy initiatives, educating local practitioners, builders, and owners in the immediate and measurable benefits of green building. Chapters are our best chance to get sustainable practices incorporated into the numbers of projects that we need to achieve our goals of 100,000 LEED buildings and 1 million LEED homes by 2010, and 1 million buildings and 10 million homes by 2020.

What's your chapter working [illegible] now?

The Middle Tennessee Chapter is working with our Metro Nashville City Council on legislation to certify all city construction in Nashville. Similar initiatives are taking shape in Knoxville and Chattanooga, and we're sharing the Nashville experience with them as we go along.

The chapter has energetic new leaders stepping forward to build on what the Chapter founders started. This is especially gratifying to me, as a founder, as it shows that the green building movement itself is sustainable.

What's the vision of the Southeast Regional Council?

The idea of regionalism was brilliant – it brought together the leaders from our region and gave us a chance to feed off each other's great ideas and energy. First and foremost, we are working hard to support our chapters. We have a great list of strategic goals for 2007, and are working hard to include those at the individual local chapter levels, too. We make a lot more progress when we're all pulling the same direction.

What do you want to accomplish as a USGBC Board Member?

If we're going to save the planet, the rapidly growing construction market in the Southeast has to be a part of the green building movement, and I felt like the Southeast Region needed a strong voice at the national level for our passion, enthusiasm and energy.

As kids, most of us had dreams of being teachers, pilots, firemen, doctors – people who make the world safer and healthier. Green design honors my younger aspirations – this is my way to leave the world a better place. My goal as a USGBC Board Member is simply to do all I can to [illegible] planet.

LOCAL LEADERSHIP GLOBAL TRANSFORMATION

Whether you're in Alaska or Alabama, joining a USGBC chapter will connect you with the people, places, and ideas to help you transform your community and your business.

Community

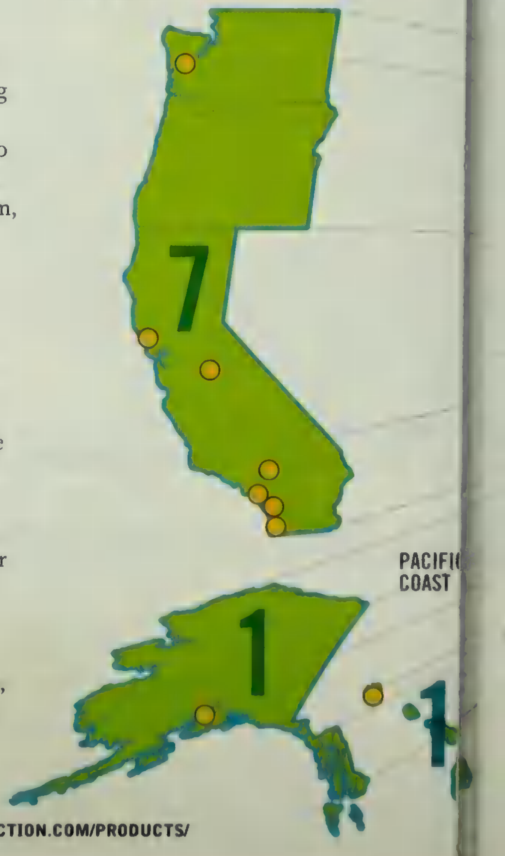
The USGBC community is expanding every day, and our 69 chapters, organizing groups and affiliates all over the country make it easy for anyone to get involved. Educational programs, regional events, and celebrations like the Los Angeles Chapter's annual black tie Green Gala connect you with other professionals in your area. Chapters can also help you forge a deeper connection with your own community. The Delaware Valley Green Building Council, for example, is a member of the Philadelphia Urban Sustainability Forum, a diverse coalition that is engaging the entire city in making Philadelphia a healthy, vibrant place to live.

Leadership

The key to leadership is education, and USGBC's chapters are educating everyone from college students to public officials about how and why to build green. With LEED workshops, study sessions for the LEED AP exam, and unique events like the Chicago Chapter's green building "trolley tours" for policy makers, chapters are providing the tools for market transformation. Chapters are also supporting efforts to effect change at the community level, and have played an important role in the more than 110 state and local initiatives for LEED nationwide. By joining a USGBC chapter, you can have a real, tangible impact on the health of your community—and the planet.

Collaboration

Collaboration is essential to success, and USGBC's chapters are working together to increase their capacity and their voice in the market. In 2004, chapters self-organized into eight regions to enhance communication and share resources and best practices. In the Southeast Region, for example, new chapters benefit from the experience of well-established chapters like Arkansas and Atlanta, and all 10 chapters in the region cooperate on regional conferences, education, and policy initiatives. Using an innovative, inclusive process called "dynamic governance," every chapter elects two representatives to their Regional Council, and every Regional Council elects a representative to USGBC's national Board of Directors. As a chapter member, you'll be part of a strong group of regional leaders with an active voice in the future direction of USGBC.



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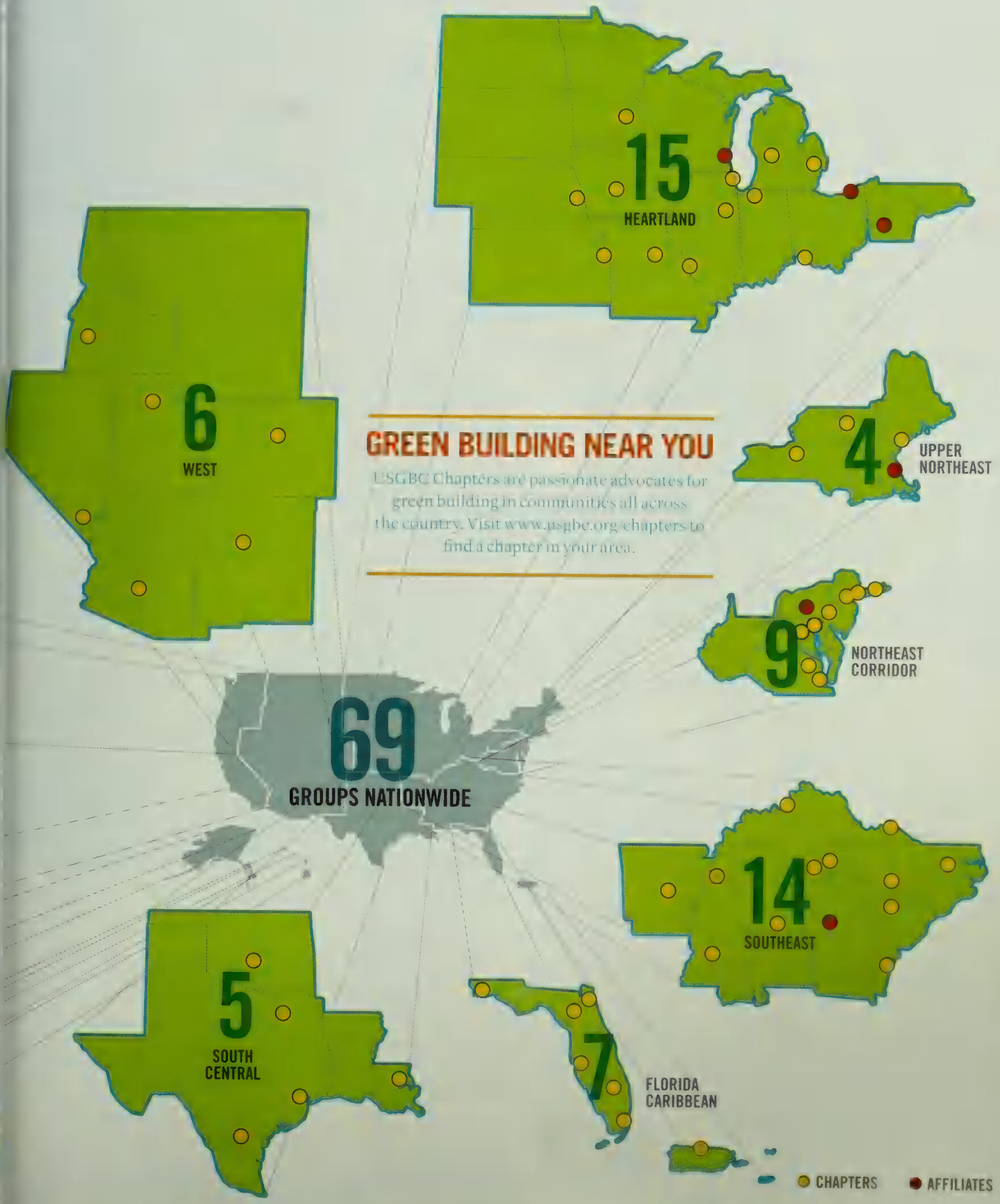

GREEN BUILDING NEAR YOU

USGBC Chapters are passionate advocates for green building in communities all across the country. Visit www.usgbc.org/chapters to find a chapter in your area.

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FEATURING

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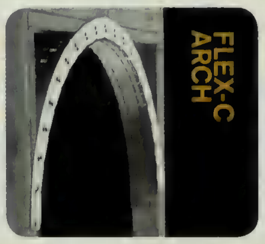
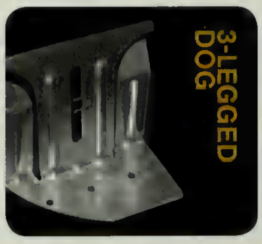
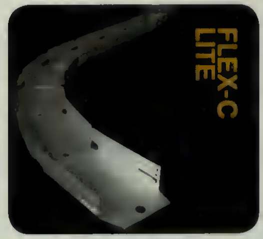

FLEX-C ARCH

FLEX-C HEADER


3-LEGGED DOG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Contact Flex-Ability Concepts, **The Curved Wall People™** for complete instructions, product specifications, load capacities and allowable heights. Assistance is also available for finding all your curved framing resources and for finding a dealer near you.

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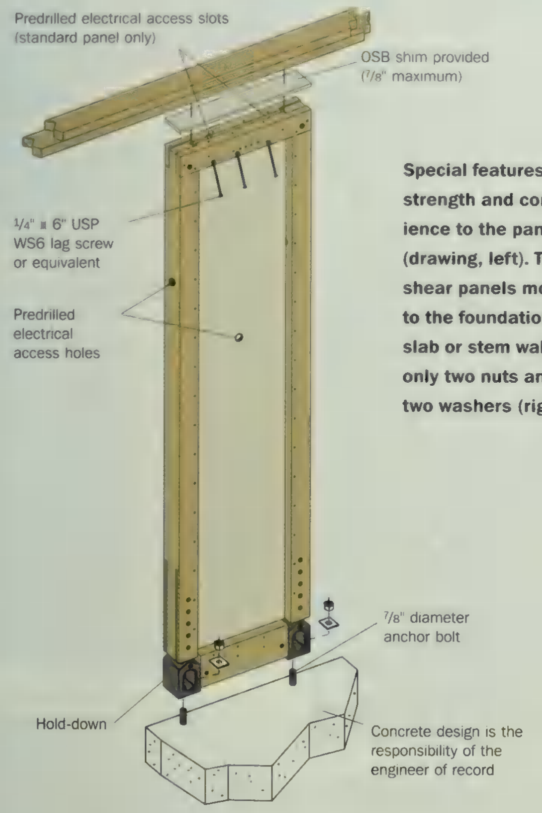
Product Focus Walls & Ceilings

Our roundup of the latest ceilings, wall-framing, and wall-finishing products includes a new and improved plaster binder, formaldehyde-free and antimicrobial ceiling panels, a FSC-certified bamboo panel system, a vaulted ceiling daylighting system, and other interior solutions. *Rita Catinella Orrell*


Predrilled electrical access slots (standard panel only)
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Predrilled electrical access holes
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Hold-down
Concrete design is the responsibility of the engineer of record

Special features add strength and convenience to the panels (drawing, left). The shear panels mount to the foundation slab or stem wall with only two nuts and two washers (right).

Prefab shear panels gathering more attention

The prefabricated Trus-Joist TJ-Shear Panels from iLevel resist lateral loads from earthquakes and hurricanes, and offer design flexibility for walls with many windows and doors. While the panels have been on the market for several years in California, Washington, Baltimore, and elsewhere, they are now available nationwide and throughout Canada.

According to T-Shear Panel product manager Jay Shansby, a moving demo showcasing the panel's strength garnered a great deal of attention at this year's Builders' Show. "It got a lot of folks starting to talk about the need for lateral bracing in markets we are aware of, or [markets that are] new to us," says Shansby. According to Shansby, forces driving demand include recent code changes in states in "Hurricane Alley" as well as shrinking lot sizes, which lead to building taller and narrower structures, increasing the weight to the wall lines.

Traditionally, shear walls were built on-site, a time-consuming process with unpredictable performance results. According to iLevel, the TJ-Shear Panel provides a more consistent performance under lateral loads, and the one-piece construction can be installed by one person. Made from TimberStrand laminated-strand lumber (LSL) through a process that minimizes waste, the panels come in a range of widths and heights, and can resist bowing, shrinking, and twisting. The panels mount to the foundation slab or stem wall with only two nuts and two washers. Lag screw holes for connection to the framing top plate are predrilled at an angle for easy access. The panel is also predrilled for electrical wires, helping installers save time and eliminate guesswork. A symmetrical panel design, concentric hold-downs, and double-shear nail connections also add strength to framing areas in the home susceptible to high lateral loads, including garage doors, window walls, and door openings.

A new manufacturing plant in Chino, California, will start producing panels to help meet demand this month. iLevel by Weyerhaeuser, Federal Way, Wash. www.iLevel.com **CIRCLE 221**

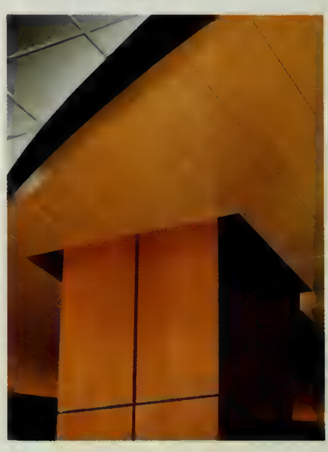
Products Walls & Ceilings

◄ VOC-free plaster binder

Mud Glue is a natural, cost-effective, zero-VOC dry-powder-binder alternative to the soy-resin acrylic Add Mix or Sanded Primer normally added to American Clay Earth Plaster's application systems. Mud Glue helps bind Earth Clay plasters to high gloss paint, dry wall, gypsum, portland cement products, and other finishes. It also inhibits mold growth, reduces the amount of water required for mixing, adds impact-resistance to the top coat, and is cheaper to ship due to reduced weight. American Clay Plaster, Albuquerque. www.americanclay.com **CIRCLE 222**

► Ceiling fans

To increase the acoustical properties of the interior spaces of Chicago's Sears Centre Arena, the design-build firm Ryan Companies specified Hunter Douglas Contract's Orchard Wood Ceiling and Luxalon Metal Ceilings lines. In the bar area near the luxury suites, the Orchard Collection was installed to provide a warm, handwrought ambience. This collection is a metal-backed, wood-veneered range durable enough to resist the wear, tear, and spills of thousands of patrons each season. Hunter Douglas Contract, Poway, Calif. www.hunterdouglascontract.com **CIRCLE 223**



▲ Certified bamboo finishes

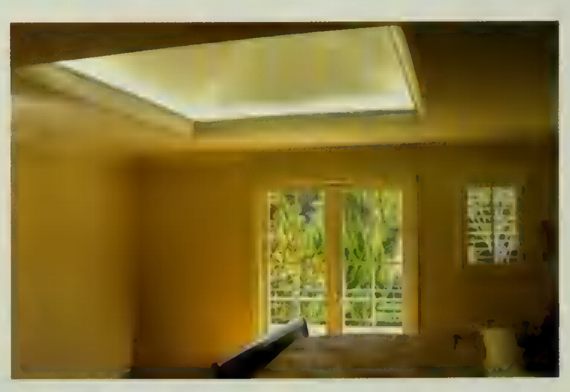
FSC-certified and World Wildlife Fund–approved Bamboo Hardwoods offers a full line of formaldehyde-free and nontoxic UV-cured finished products. As part of its line, the Seattle-based company offers five species of bamboo poles for uses including wall and ceiling coverings, furniture, gazebos, and other applications. Each pole species offers different colors, diameters, and thicknesses. Shown above is a porch ceiling cover made with half-round and full bamboo poles. Bamboo Hardwoods, Seattle. www.bamboohardwoods.com **CIRCLE 224**

◄ Breathing easier

With its newly reformulated ceiling panels, USG has become the first manufacturer to offer formaldehyde-free ceiling panels and the highest level of antimicrobial protection available on the market. Two levels of antimicrobial protection are offered, while more than 25 ceiling families deliver formaldehyde-free or low-formaldehyde performance standard, without any additional charges or lead time. Of those, eight product lines exceed the California Office of the Environmental Health Hazard Assessment standard. USG, Chicago. www.usg.com **CIRCLE 225**

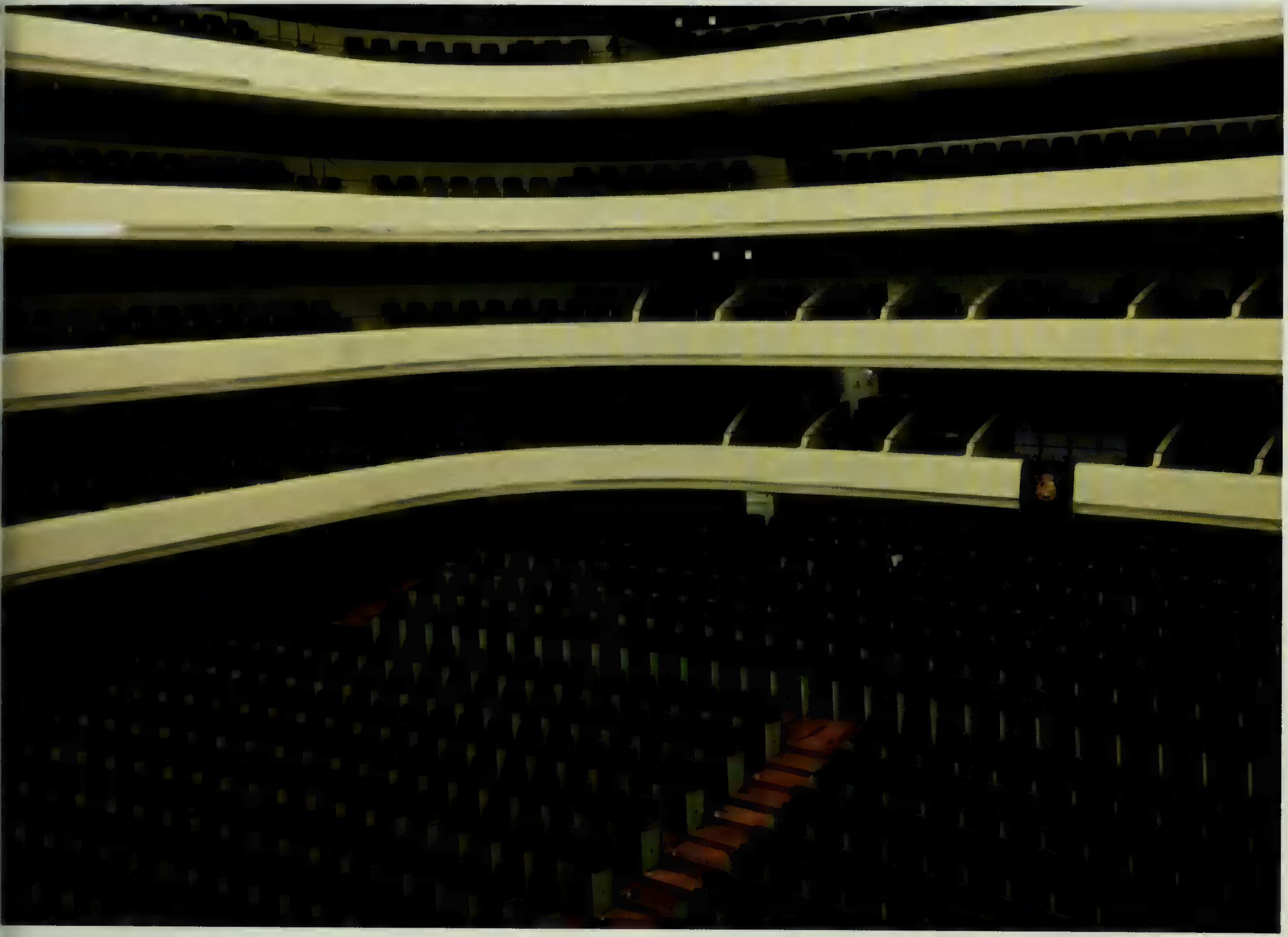
◄ Tougher framing lumber

Boise Cascade has introduced a new wall-framing product designed for tall walls and other applications where strong, straight framing materials are needed. Competitive with laminated-strand products, Versa-Stud offers at least 2.1 times more bending strength and 20 percent more stiffness than No. 2 SPF (Spruce-Pine-Fir) 2 x 6 studs, and none of the cracks or other issues that can plague solid lumber. Versa-Stud is available in a 1½" width and five depths: 3½", 5½", 7¼", 9¼", and 11¼", all in lengths up to 24'. Boise Cascade Engineered Wood Products, Boise. www.bc.com **CIRCLE 226**



▲ Naturally lit vaulted and panel ceilings

The Eisenbeisz Design Studio has created a new daylighting system where natural light is reflected by carefully engineered panels within the ceiling assembly. The suspended ceiling panels in the center are positioned to reflect the incoming light into the room regardless of the position of the sun, without the effects of damaging solar UV and heat gain. The panels are made of lightweight natural wood veneer with stained or painted surfaces. The perimeter is detailed with a soffit or crown molding to compliment the overall architectural style of the residence or commercial building. Eisenbeisz Design Studio, Santa Barbara, Calif. john@eisendesignstudio.com **CIRCLE 227**



El Palau de Les Arts Reina Sofia, Valencia - Project: **Santiago Calatrava**
Model: **special custom armchair**

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Global Warming is a big worry for all of us.

We are all affected by rising energy costs and carbon dioxide produced as a result of burning fossil fuels. In fact, heating and cooling buildings is one of the greatest single contributing factor to the release of CO_2 into the atmosphere and, therefore, to global warming. No matter what your primary motivation – saving on your energy bills or saving the planet – you can do both by using cladding systems from Dryvit.

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Don't believe it? Ask the scientists at the Oak Ridge National Laboratories – one of the nation's leading independent testing facilities. In whole wall R-Value comparisons, Dryvit EIFS were determined to be over 84% more energy efficient than six other commonly used claddings, including stucco, brick, concrete, wood, vinyl and glass.

But there is more. The National Institute of Standards and Technology (NIST) has evaluated the CO_2 footprint of Dryvit through all the phases of Life Cycle Analysis – including raw material production, transportation, and use – and found that, overall, Dryvit EIFS contributed much less CO_2 than stucco or brick over the life of the building.

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Product Briefs

◄ Supersize showerhead

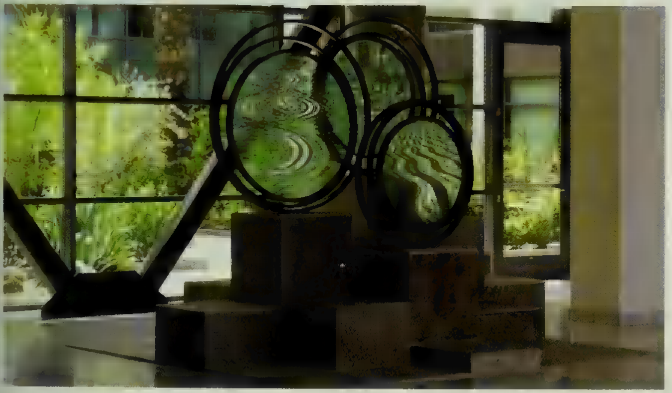
The XL showerhead from Zucchetti is exactly that, an extra-large version of the typical rain-shower-style fixture. Alongside the various round, rectangular, modular, and combinable showerheads available from the company (and a range of sprays, chromatherapy, and music-therapy options), the Shower collection's 20"-wide stainless-steel showerhead features a circular rain jet spray with more than 400 nozzles. Installed flat on the ceiling, the shower head is available in a standard version or with a central LED light that creates a ceiling lamp effect. Zucchetti USA, New York City. www.zucchettidesign.com **CIRCLE 228**

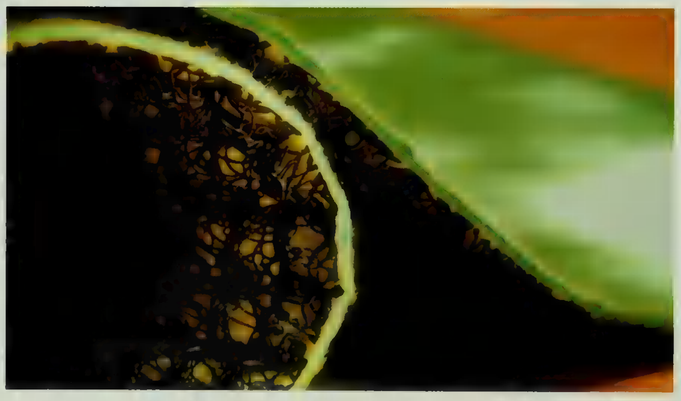
▲ Bespoke cabinetry

London-based Pinch is a collaboration between the husband-and-wife team Russell Pinch and Oona Bannon. Since 2004, Pinch has designed products, interiors, graphics, and branding for leading retailers and manufacturers. The recently introduced Armoire collection is the first one designed, manufactured, and distributed by Pinch directly. This collection of free-standing armoires for the home or office includes three editions, called Alba, Marlow, and Frey. Each piece is made to order by an individual craftsman at a leading British cabinet-maker. Interior shelving can be designed for a range of needs, such as media equipment or kitchen storage (above two). Pinch, London. www.pinchdesign.com **CIRCLE 229**

▼ Sculpting with a palette of light

To create his glass-and-metal sculptures, Ken Leap draws inspiration from a formal education in art, as well as previous careers in science, mathematics, and engineering. Leap's Refractive Relief Sculpture technique is the focus of his current work. Similar to conventional methods of relief sculpture in producing a contoured surface, this technique forms the motif by refracting light through a stack of long, rectangular pieces of float glass, each having a curvilinear cut along one edge. The technique was used to create the Confluence interior sculpture (below), a public art commission for the City Hall in Yuma, Arizona. Ken Leap, Portales, N.M. www.kenleap.com **CIRCLE 230**



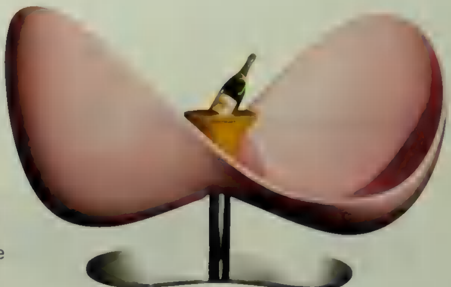


▲ Green roofing aid

The EnkaRetain & Drain is a new product developed by Colbond that combines an absorbent, nonwoven filter fabric bonded to a 3D Enkadrain 3000R series drainage core for use primarily in green-roof and planter applications. The Enkadrain drainage core is made of postindustrial, recycled polypropylene molded into a square, waffle pattern that allows water to flow from all directions. A water-retention fabric that holds 10 times its weight in water is bonded to one surface, replacing traditional filter fabric. It provides plant roots with a continuous source of moisture while allowing excess water to filter through and drain. Colbond, Enka, N.C. www.colbond-usa.com **CIRCLE 231**

► Champagne for two

While a $10,000 chair is unlikely to be in the budget for your next project, the limited-edition Clicquot love seat is certainly an eye-catcher with its glossy pink sheen. Designed and signed by New York–based industrial designer Karim Rashid, the uncushioned, two-seater chair marks the first time the renowned champagne producer Veuve Clicquot has lent its name to a piece of furniture. Designed to help promote the company's recently introduced Rosé champagne, the love seat is a fresh take on the 18th-century armchair, featuring two petal-shaped seats joined together on a chrome-plated pedestal topped by a pistil-shaped ice bucket in the brand's signature yellow color. More than 6 feet long, 4 feet high, and just under 3 feet wide, it is produced in Italy from high-quality fiberglass with a fireproof varnish. There is currently a 12 to 14 week lead time for delivery, and only 40 total pieces will be produced. The Conran Shop, New York City. www.conranusa.com **CIRCLE 232**



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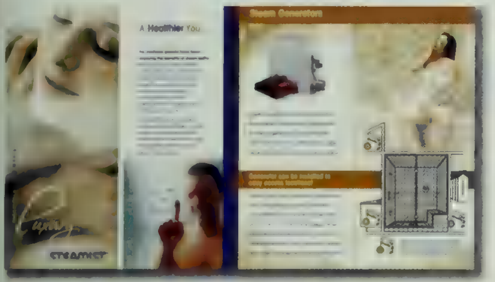
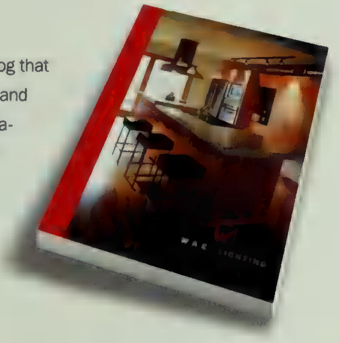
Product Resources: Literature



Attainable luxury

Steamist, a leading manufacturer of steam baths and saunas, has created a new full-color brochure that outlines installation tips and control options as well as the health benefits of the company's products. Steamist offers a full line of residential steam-bath and sauna products and systems, as well as a full commercial line. Steamist, Rutherford, N.J. www.steamist.com **CIRCLE 233**

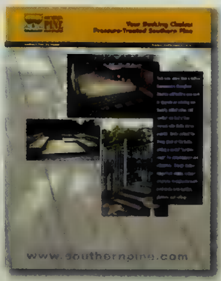


Innovative lighting

W.A.C. Lighting introduces a 284-page catalog that features the company's latest technologies and designs in accent, task, ambient, and decorative lighting. The catalog features a lineup of new product releases, full-color product and installation shots, as well as photometric and specification data. W.A.C. Lighting, Garden City, N.Y. www.waclighting.com/USA **CIRCLE 234**

Trends and ideas

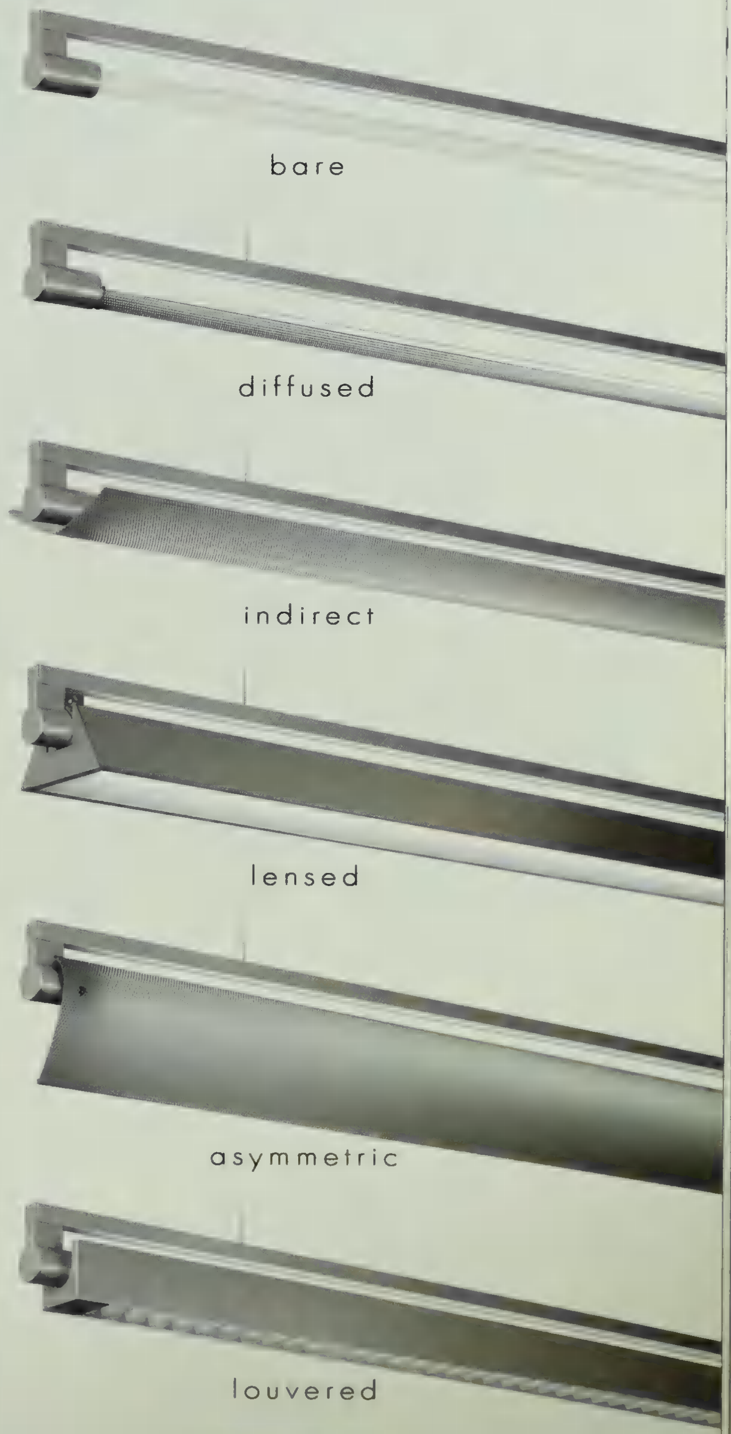
Jeld-Wen, a manufacturer of windows and doors, released *Trends & Ideas*, a 3-ring bound book that contains home design and building trends from the past two years, as well as recent trend forecasts for 2007. The book is accompanied by a CD with high-resolution images and text files. Future trend stories will be included in later editions. Jeld-Wen, Klamath Falls, Ore. www.jeld-wen.com **CIRCLE 235**



Reduced flood risk

Southern Pine Council has released a 48-page guide for building a raised-floor foundation system that takes a thorough look at its design and advantages. The guide covers a vast range of related topics, such as moisture control, soil and site preparation, foundation types, termite-resistant framing, design loads, span tables, and floor framing. Southern Pine Council, Kenner, La. www.southernpine.com **CIRCLE 236**

How do you Swing?



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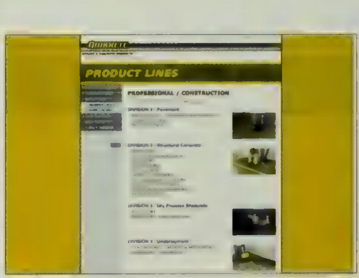
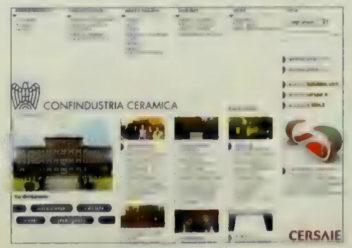
Product Resources: On the Web

www.kepcoplus.com
Kepco+ is a custom-cladding contractor specializing in the design, fabrication, and installation of natural stone, tile, and/or terra-cotta cladding systems. The Kepco+ Web site provides a comprehensive look at the company's projects, including office, religious, historic, and government buildings. It also features a new section focusing on its various cladding systems, including a standard truss, the Cygnus panel system, handset applications, and the company's rain-screen technologies.

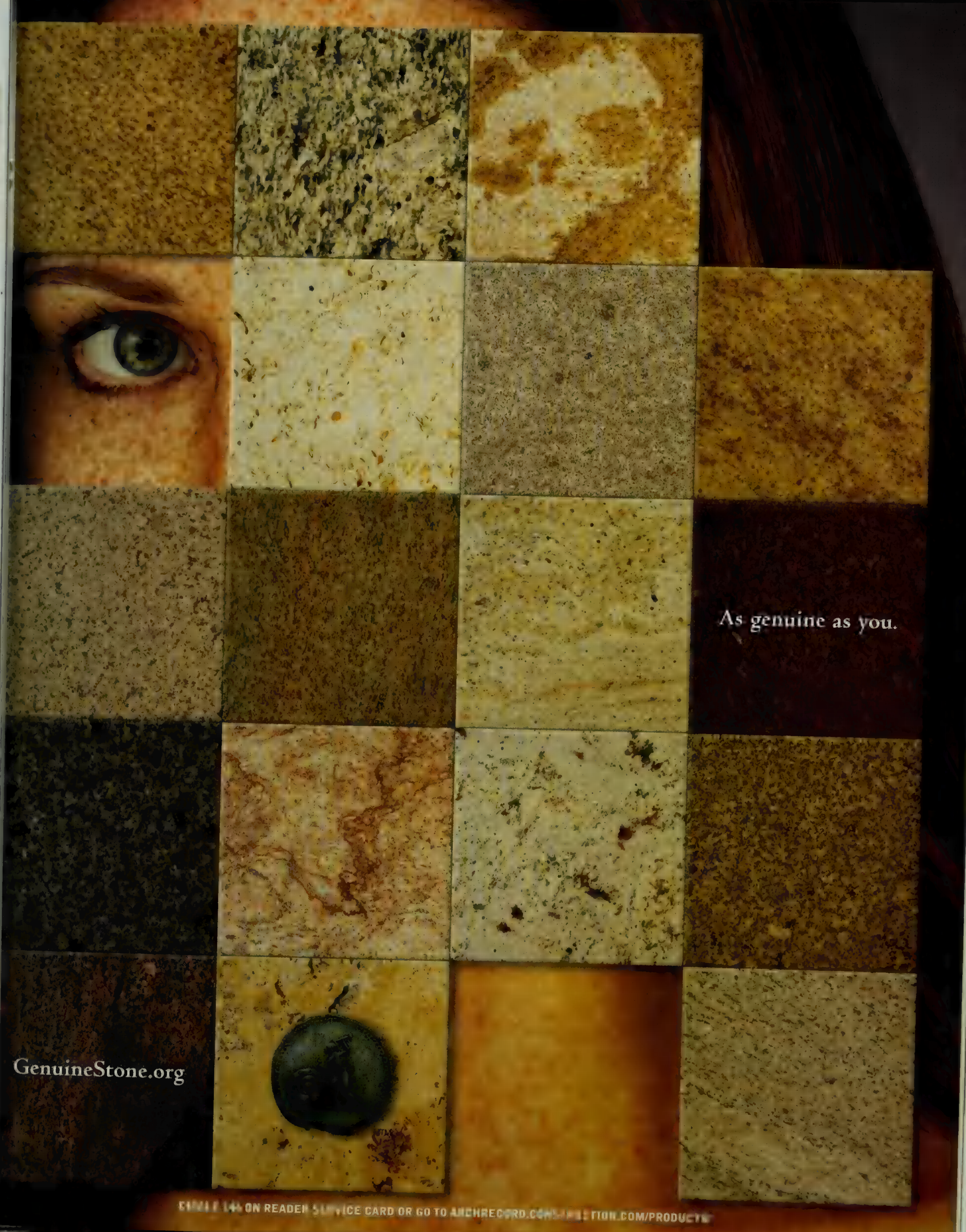
www.lamurrina.us
The easy-to-navigate site for this Los Angeles–based distributor of Italian-made Murano glass allows users to view lighting and sculptural glass objects in an online product-guide format. An illustrated portfolio section offers visitors the chance to see the products in real installations. Prices, sizes, and available colors are not mentioned anywhere on the Web site, however, and need to be obtained directly from the contact information provided.



www.quikrete.com
The Quikrete Companies, the largest manufacturer of packaged concrete in the U.S., provides an easy-to-use Web interface in which customers have the ability to view the products and descriptions as well as download specs and material-safety data sheets. The interactive Web site allows users to see actual images of the product as well as renderings demonstrating its use. The site also provides a thorough FAQ page and offers contact information for additional questions not answered on the site itself.



www.confindustriaceramica.it
The Confindustria Ceramica, the Italian Association of Ceramics, represents a wide range of companies that produce ceramics. In addition to ceramic tile and refractory manufacturers, ceramic dishware, decorative ceramics/vases, and sanitaryware are also manufactured. The Web site is organized into five categories: Who We Are, Activities, Network, Sectors and Companies, and the Press Room. The site contains more than 200 pages, 81 downloadable documents, and 1,500 high-resolution images.



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Dates & Events architecturalrecord.com/datesandevents/

New and Upcoming Exhibitions

Design for the Other 90%
New York City
May 4–Sept 23, 2007
This exhibition explores the variety of affordable and socially responsible objects designed for the more than five billion people across the globe (90 percent of world's total population) who often lack the means to purchase even the most basic goods. The exhibition will feature design solutions for the poor and marginalized around the world, ranging from the LifeStraw, a mobile personal water purification tool, to furniture made from hurricane debris through the Katrina Furniture Project, which works to rebuild the economic and social capabilities in New Orleans. At the Cooper-Hewitt, National Design Museum. Call 212/849-8400 or visit http://ndm.si.edu/.

Walking Tour—Midtown: City of Glass
New York City
May 5, 2007
Architectural historian Matthew Postal will discuss the history and development of glass as an important building material. Starts at Christie's. Call 212/501-3011 or visit www.bgc.bard.edu.

Islamic-Style Architecture Tour
Chicago
May 6, 2007
The themes of this bus tour are architectural form, style, and ornamentation, with comparisons between the role of ornamentation in Islamic and American Architecture. Included is an optional tour of the Smart Museum's Cosmophilia ("love of ornament") Exhibition, displaying treasures of Islamic Art from the David Collection, Copenhagen. At the Chicago Architecture Foundation. Call 312/922-3432 or visit www.architecture.com.

Snapshot 007:
Current Houston Design on View
Houston
May 18–June 16, 2007
The fifth open-call exhibition showcasing architecture, urban planning, preservation, landscape architecture, interiors, furniture, and graphics by more than 100 Houston architects and designers. At Lawndale Art Center. Call 713/348-4876 or visit www.rda.rice.edu.

EMERGENT + Buro Happold:
The Dragonfly
Los Angeles
May 18–July 8, 2007
SCI-Arc is pleased to present *Dragonfly*, a site-specific installation designed by Los Angeles–based architecture firm EMERGENT and international engineering firm Buro Happold. Rather than a sculpture, the biomimetic creation explores the relationship between structure and form and is an experiment in the fluid feedback of design sensibility, engineering innovation, and the logic of digital fabrication. At SCI-Arc Gallery. Call 213/613-2200, x 328, or visit www.sciarc.edu.

George Yu Architects:
Honda Advanced Design Center
Los Angeles
May 18–July 8, 2007
This exhibition highlights the architects' transfor-

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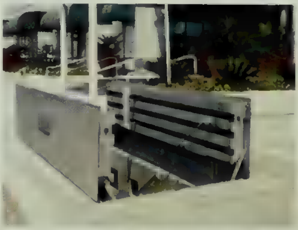

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mation of a 6,000-square-foot retail space on the ground floor of a historic building into design studios and conference rooms using the same design technology as the carmaker for the new Honda Advanced Design Center. At SCI-Arc Library. Call 213/613-2200 x328 or visit www.sciarc.edu.

Studio @ the Center: Lighting Design
New York City
June 7–August 4, 2007
This exhibition will highlight the work of 12 students from the High School of Art and Design who are taking part in the intensive after-school program that exposes them to one area of design through interaction with design professionals. At the Center for Architecture. Call 212/683-0023 or visit www.aiany.org.

IDEO Selects: Works from the Permanent Collection
New York City
June 22, 2007–Jan. 20, 2008
IDEO, a leading innovation and design firm for more than 20 years, mined the Cooper-Hewitt's permanent collection as the fourth guest curator in the exhibition series presented in the Nancy and Edwin Marks Gallery. IDEO will organize works around the theme of "design thinking." The exhibition objects range from the 16th-century to the present, and despite their diversity of intent, media, and context, reveal a shared story about the ways in which the designer is called upon to solve everyday problems. At the Cooper-Hewitt, National Design Museum. Call 212/849-8400 or visit http://ndm.si.edu/.

On a Grand Scale: The Hall of Architecture at 100
Pittsburgh
September 22, 2007–January 13, 2008
In celebration of the 100th anniversary of the Carnegie Museum of Art's Hall of Architecture, the museum will present an exhibition surveying its collection of nearly 150 plaster architectural casts that Andrew Carnegie created specifically for this magisterial space. At the time of the hall's inauguration in April 1907, the museum joined the ranks of prominent American museums exhibiting plaster casts of monuments from around the world. To ensure the hall's relevance to visitors, Carnegie surveyed architects of the day to determine which casts the museum would acquire. At the Heinz Architectural Center. Call 412/622-3131 or visit www.cmoa.org.

Ongoing Exhibitions

Some Assembly Required: Contemporary Prefabricated Houses
Los Angeles
Through May 20, 2007
This exhibition presents eight projects by several of today's leading architects of modular dwellings, which take various approaches to prefab—from homes that are built by the owner out of a kit with an instruction manual to those that are delivered fully assembled. At the Museum of Contemporary Art. Call 213/621-1749 or visit www.moca.org.

Growing Country, Growing Needs—Federal Architecture and Art
Richmond, Va.
Through May 27, 2007
This one-time exhibition will showcase the new Richmond courthouse, a series of new U.S. border stations, and a selection of other Design Excellence Program projects that illustrate the government's goal to commission inspiring, contemporary civic architecture that reflects and promotes American ideals. At the Virginia Center for Architecture. Visit www.aia.org.

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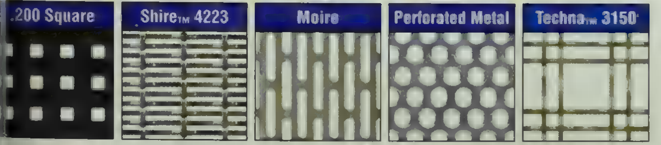

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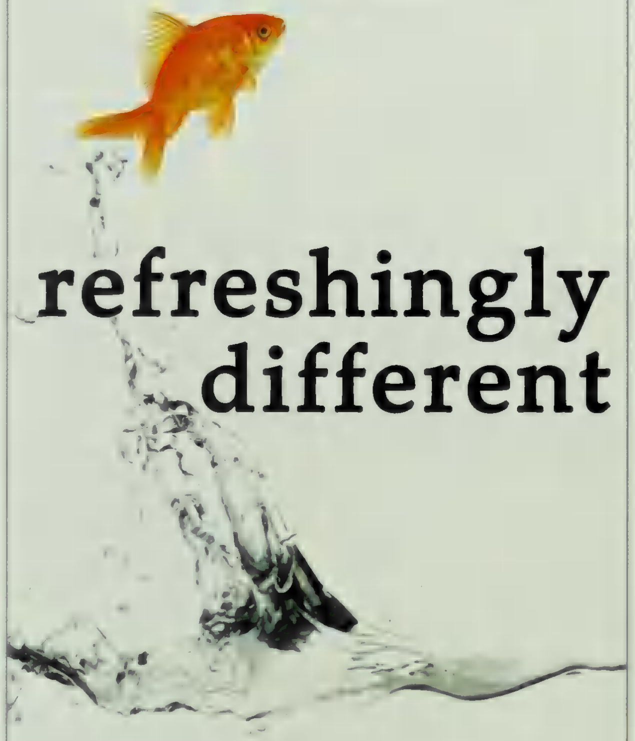

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Dates & Events

The Green House: New Directions in Sustainable Architecture and Design
Washington, D.C.

Through June 3, 2007

This exhibition explores the building materials, consumer products, and energy systems that offer attractive and often affordable alternative sources for building. The show includes a life-size replica of California architect Michelle Kaufmann's Glidehouse, an example of a Green Trend House that demonstrates sustainable principles. It also features models, photographs, and drawings of other contemporary projects around the world that show how sustainable principles are applied with innovation and beautiful results. At the National Building Museum. Call 202/272-2448 or visit www.nbm.org.

Gritty Brits: New London Architecture
Pittsburgh

Through June 3, 2007

In recent years, a new generation of architects has emerged in London, operating mostly from the postindustrial East End and intimately engaged with the city's contemporary urban condition. *Gritty Brits: New London Architecture* presents the work of six firms: Adjaye/Associates, Caruso St. John Architects, FAT [Fashion Architecture Taste], Níall McLaughlin, muf, and Sergison Bates architects. At the Heinz Architectural Center. Call 412/622-3131 or visit www.cmoa.org.

Powerhouse: New Housing New York
New York City

Through June 16, 2007

This exhibition illuminates the people, projects, and public policies that fuel the affordable housing landscape in New York City, focusing on the New Housing New York Legacy Project (NHNY) competition. At the Center for Architecture. Call 212/683-0023 or visit www.aiany.org.

75 Years of Architecture at MoMA
New York City

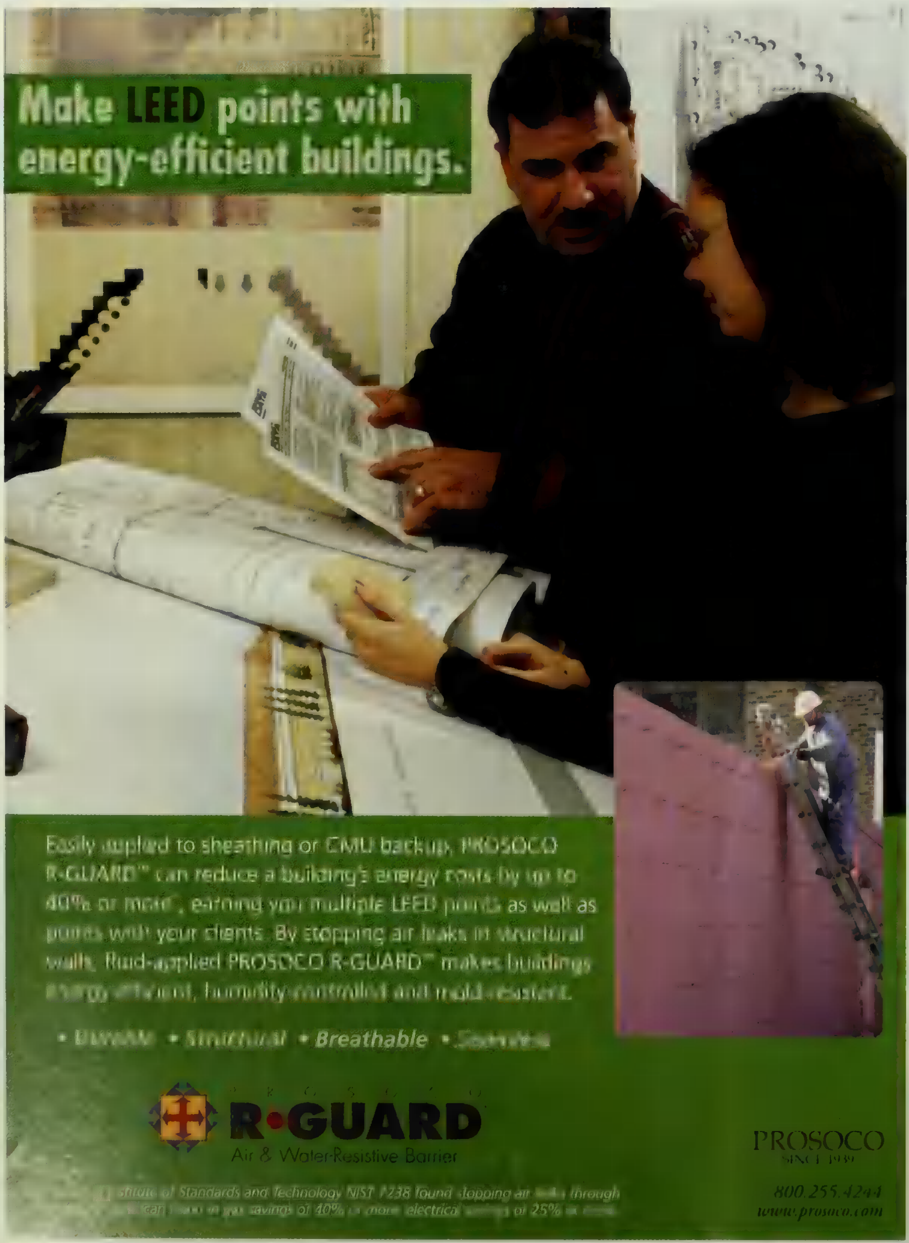
Through June 18, 2007

MoMA's Department of Architecture, founded in 1932, was the world's first curatorial department dedicated to the discipline. This installation of drawings and models from the collection celebrates the 75th birthday of the department and demonstrates the development of its collecting practice, with several recent acquisitions on view for the first time. At the Museum of Modern Art. Call 212/708-9400 or visit www.moma.org.

NY 150+: A Timeline: Ideas, Civic Institutions, and Futures
New York City

Through June 23, 2007

To commemorate the 150th anniversary of the founding of the American Institute of Architects in New York City, the AIA New York Chapter will feature an exhibition charting the transformation of the city and the profession from 1857 through the present and into the future. Genetic lines tracing the founding of the institute will intersect with various democratic and social movements and the architecture of New York's civic structures. Fifteen buildings and public spaces will be presented with a factual overview and commentary by architects, critics, journalists, authors, and others to illustrate the ideas that define the city's history as well as its future. A preamble will frame the social, cultural, and historical discourse, giving special emphasis to the directions of architecture in the city as imagined within a puritan pastoral democracy. At the Center for Architecture. For additional information, call 212/683-0023 or visit www.aiany.org.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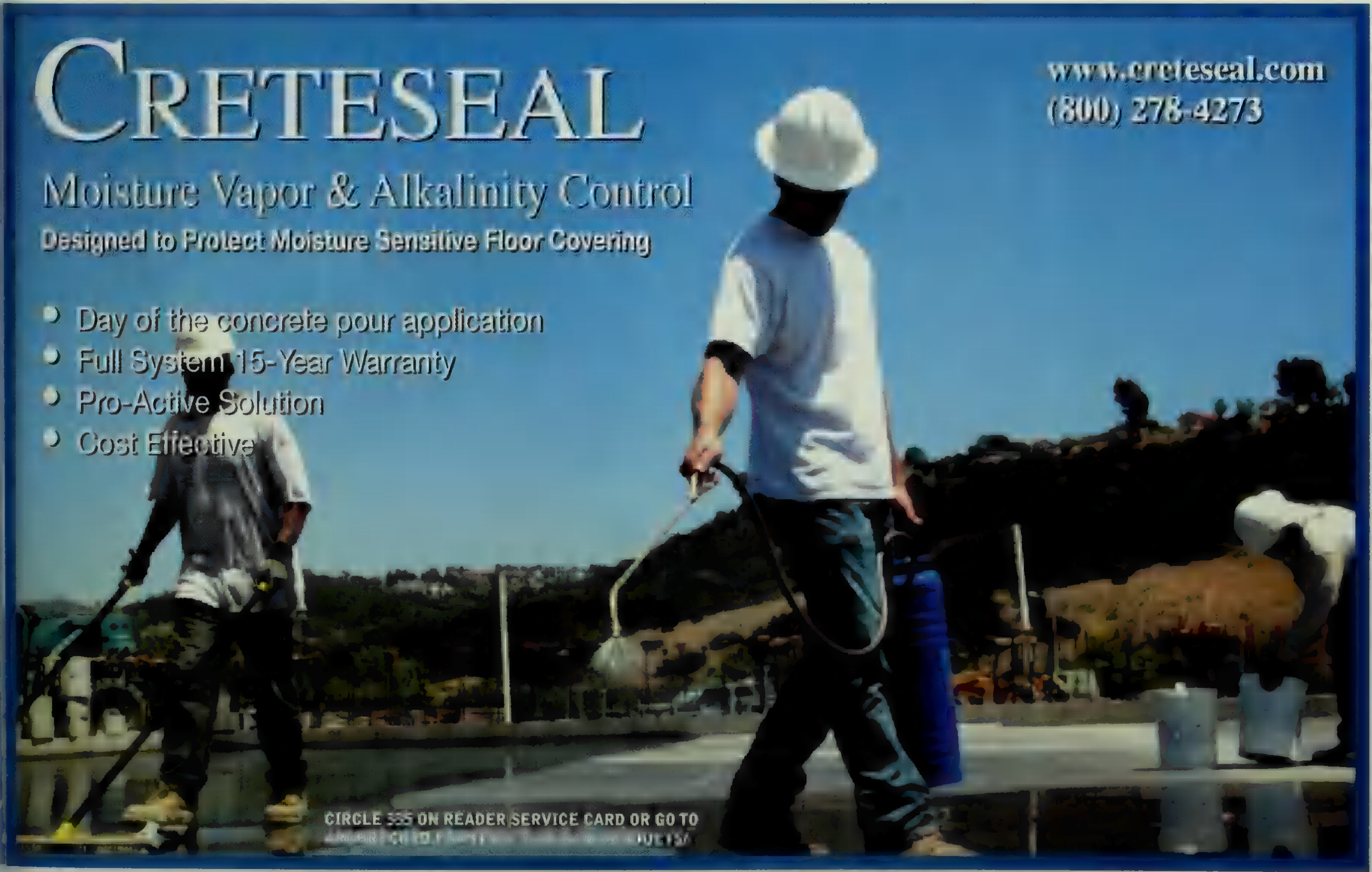

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Open House: Architecture and Technology for Intelligent Living
Los Angeles
Through July 1, 2007
This exhibition includes nearly 100 teams of emerging designers whose work focuses on technology and domestic architecture. The teams were invited to submit new designs that offer real-life solutions that incorporate the concepts of connectivity, well-being, flexibility, and sustainability. At Art Center College of Design's South Campus Wind Tunnel. Call 626/396-2380 or visit www.artcenter.edu.

2007 AIA New York Chapter Design Awards
New York City
Through July 7, 2007
A showcase of the 2007 award-winning projects in three categories: Architecture, Interiors, and Projects. At the Center for Architecture. Call 212/683-0023 or visit www.aiany.org.

The 2006 National Design Triennial: Design Life Now
New York City
Through July 29, 2007
Inaugurated in 2000, the triennial seeks out and presents the most innovative American designs from the prior three years in a variety of fields, including product design, architecture, furniture, film, graphics, new technologies, animation, science, medicine, and fashion. On view throughout the museum campus will be the work of 87 designers and firms, ranging from established design leaders such as Apple Computer, architect Santiago Calatrava, and Nike to emerging designers like Joshua Davis, Jason Miller, and David Wiseman. At the Cooper-Hewitt, National Design Museum. For more information, call 212/849-8400 or visit www.ndm.si.edu.

Devil in the White City Tour
Chicago
Select Fridays and Sundays, Through October 28, 2007
The tour is based on Eric Larson's best-selling book and focuses on two events: the World's Columbian Exposition of 1893 and the emergence of America's first serial killer to come to public attention. A slide presentation is followed by a bus tour of Prairie Avenue and Jackson Park with a visit to many buildings and places identified in the book. At the Chicago Architecture Foundation's ArchiCenter. For more information call 312/922-3432 or visit www.architecture.org.

Lectures, Conferences, and Symposia

AIA 2007 National Convention and Design Exposition
San Antonio
May 3–5, 2007
The convention theme, "Growing Beyond Green," spotlights sustainable design, how you can green your projects, educate your clients, and reduce the impact buildings have on the environment. Visit www.aiaconvention.com.

Lightfair International (LFI) 2007
New York City
May 6–10, 2007
The industry's largest and most diverse educational initiative offers 72 courses, totaling more than 210

hours of programming. Strategically structured and designed in close partnership with industry experts, conference topics address everything from lighting software and applications to business and lighting fundamentals to design innovation and product updates. At the Jacob K. Javits Convention Center. Call 404/220-2822 or visit www.lightfair.com.

BKLYN DESIGNS 2007
Brooklyn, N.Y.
May 11–13, 2007
Celebrating its five-year anniversary, the show will take place in multiple venues throughout the DUMBO neighborhood, including St. Ann's Warehouse and the Smack Mellon Gallery. This year will also mark the launch of BKLYN DESIGNS +, a new cash-and-carry accessories market. For more information, call 718/243-1414 or visit www.bklyndesigns.com.

Lecture: Swedish Modernism in the Private Realm
New York City
May 17, 2007
Architectural historian Nicholas Adams will survey Swedish Modern domestic architecture, highlighting works by Matthsson's contemporaries, including Gunnar Asplund, Per Friberg, Klas Anshelm, Peter Celsing, and Bengt Edman, At the Bard Graduate Center. For more information, call 212/501-3011 or visit www.bgc.bard.edu.

Downtown Third Thursdays Lecture Series
New York City
May 17, 2007
The ongoing series celebrating Lower Manhattan's architectural treasures and history will feature Barbara Christen, architectural historian and Cass Gilbert scholar, speaking on "Cass Gilbert and History: The Past as Present." At the New York County Lawyers' Association. For more information, visit www.downtownny.com/third.

AIA 150
Lecture: Victoria Meyers
Harrisburg, Pa.
May 17, 2007
Victoria Meyers, a principal of hanrahanMeyers architects (hMa) in New York City, will make a presentation entitled "Framing Nature" as the Central Pennsylvania Chapter of the American Institute of Architect's Spring Lecture at the Commonwealth Keystone Building. For more information, call 717-236-8969 or visit www.aiacentralpa.org.

International Design Conference
New York City
May 17–18, 2007
The third annual symposium on design and materials, celebrating ten designers whose work exhibits pioneering material innovation and execution. Material ConneXion has identified 10 disciplines that together represent the broad landscape of design, and asked the editors of prominent magazines within each discipline to provide nominees for their category. At the Equitable Auditorium. Visit www.materialconnexion.com.

Alternative Building Materials & Design Expo 2007
Los Angeles
May 18–19, 2007
The fourth annual Alternative Building Materials & Design Expo is the premier green building Expo in Southern California, expanding for the first time to two full days of exhibitors, hands-on workshops, panels, book signings, specially

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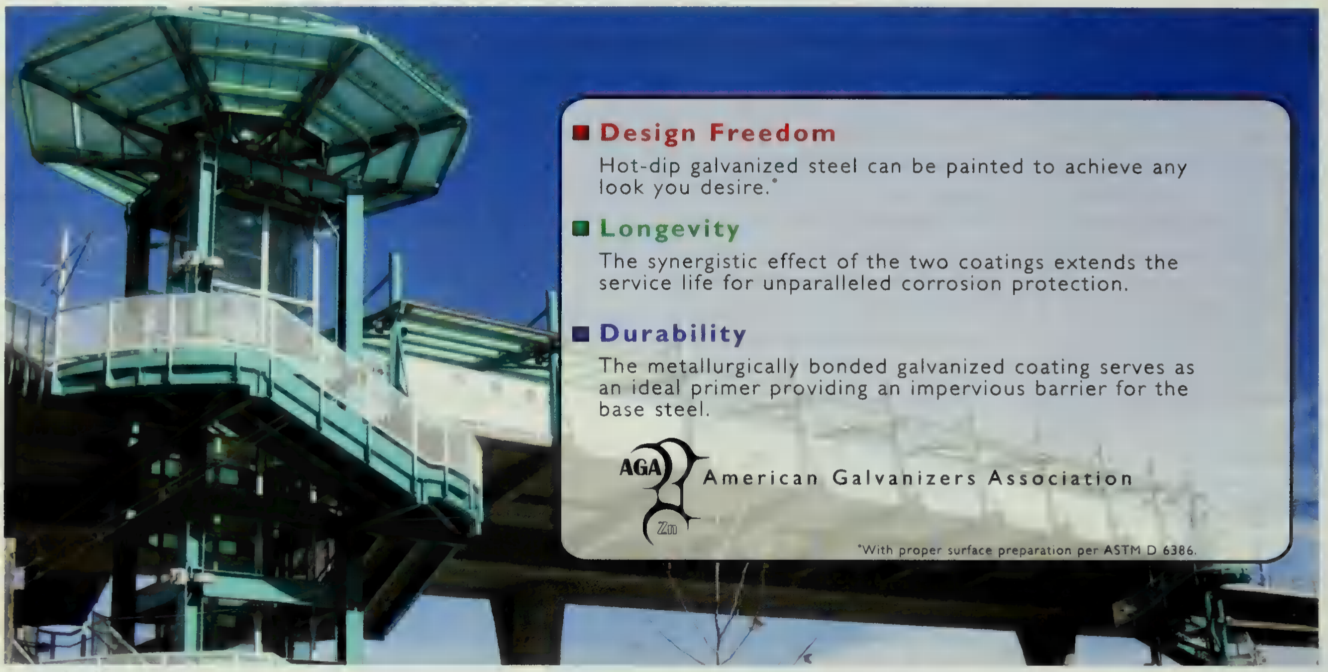

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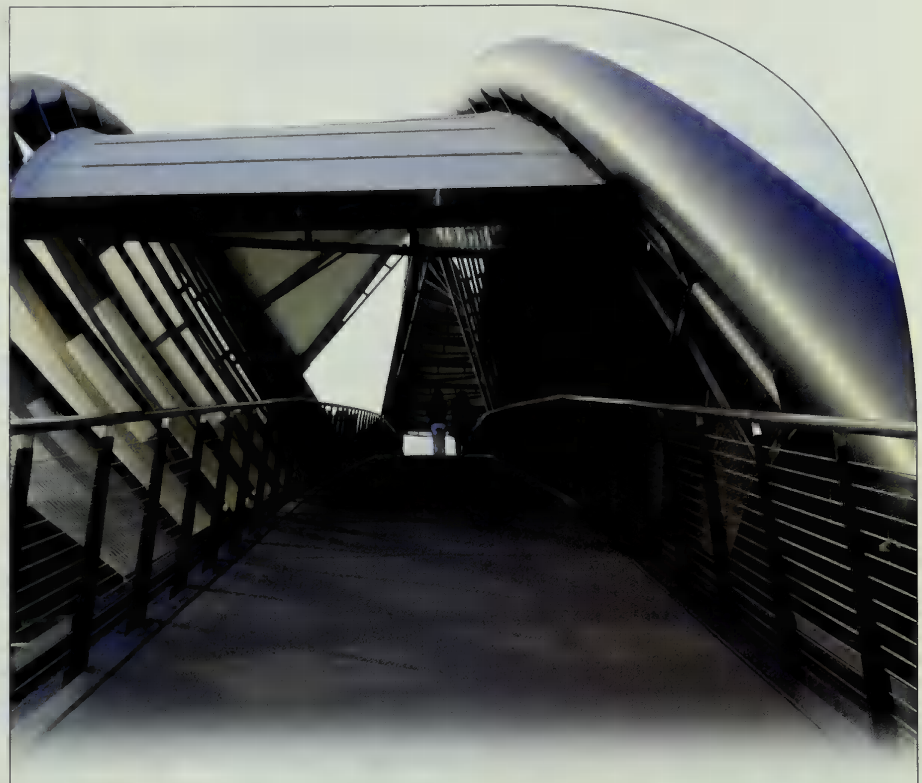
created presentations, and interactive take-home materials. At Santa Monica Air Center. Call 310/390-2930 or visit www.altbuildexpo.com.

33rd Annual Wright Plus Benefit Housewalk
Oak Park, Ill.
May 19, 2007
Interior tours of eight private residences in the Frank Lloyd Wright Historic District. Call 708/848-9518 or visit www.wrightplus.org.

The 19th Annual International Contemporary Furniture Fair
New York City
May 19–22, 2007
More than 600 exhibitors will display contemporary furniture, carpet and flooring, lighting, outdoor furniture, materials, wall coverings, accessories, textiles, and kitchens and baths for residential and commercial interiors. This assemblage of national and international exhibitors brings together a selective sampling of the world's most original and avant-garde home and contract products. At the Jacob K. Javits Convention Center. Visit www.icff.com.

AIA 150
Working With an Architect
Chicago
May 20, 2007
Recognizing that most people have never worked with an architect, AIA Chicago launched this public education series in 1994. Since then, the organization has helped hundreds of Chicago-area homeowners gain a better understanding of how to find the right architect for their project, what to expect during design and construction, and how to avoid costly surprises. At the American Institute of Architects Chicago Office as part of the Great Chicago Places and Spaces Weekend. Call 773/206-4798, 312/670-7770 or visit www.aiachicago.org.

The Forum Project:
Form and the City
Rotterdam, The Netherlands
May 21–June 1, 2007
Part of the two-year program dedicated to exploring relationships between form, politics, and contemporary life. The invitational master class features instructors Pier Vittorio Aureli and Elia Zenghelis from the Berlage Institute as well as Joan Ockman from the Graduate School of Architecture, Planning and Preservation,



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Dates & Events

Columbia University. At Berlage Institute. Call 212/854-8165 or visit www.arch.columbia.edu.

Function, Form, and Meaning: Design Excellence in Federal Courthouses
Washington, D.C.
June 1, 2007
A review and national conversation on federal courthouse design under the U.S. General Services Administration's award-winning Design Excellence Program. Architects, members of the federal judiciary, and GSA design and construction officials and project managers will focus on function, form, and meaning in creating appropriate and inspiring federal courthouses that represent the American judiciary in the 21st century. At the Ronald Reagan Building & International Trade Center. Call 202/219-1066 or visit www.designexcellence.gov.

45th International Making Cities Livable Conference on True Urbanism: Designing for Social & Physical Health, and Exhibit on New Designs for Mixed-Use Urban Fabric
Portland, Ore.
June 10–14, 2007
An international conference for city officials, practitioners, and scholars in architecture, urban design, planning, landscape architecture, transportation planning, health policy, and social sciences. Participants will share ideas and establish working relationships. At the Governor Hotel. For more information, visit www.livablecities.org.

Mundaneum 2007
San Jose, Costa Rica
June 14–16, 2007
Mundaneum was the name given to one of Le Corbusier's projects for an eponymous educational world center aiming to serve a group of international organizations located in Geneva, Switzerland, in 1929. Although never built, the project triggered a theoretical argument between Corbusier and Czech critic Karel Teige. This conference brings together speakers on the topic of "rethinking architecture in the Americas," with utopian visions and nostalgia emerging in times of peace and collaboration during the postwar era. At Universidad del Diseño. Visit www.unidis.ac.cr.

Transparent Forum
Tampere, Finland
June 15–18, 2007
The guiding theme for the conference is green values, with the leading theme, "Kyoto Protocol

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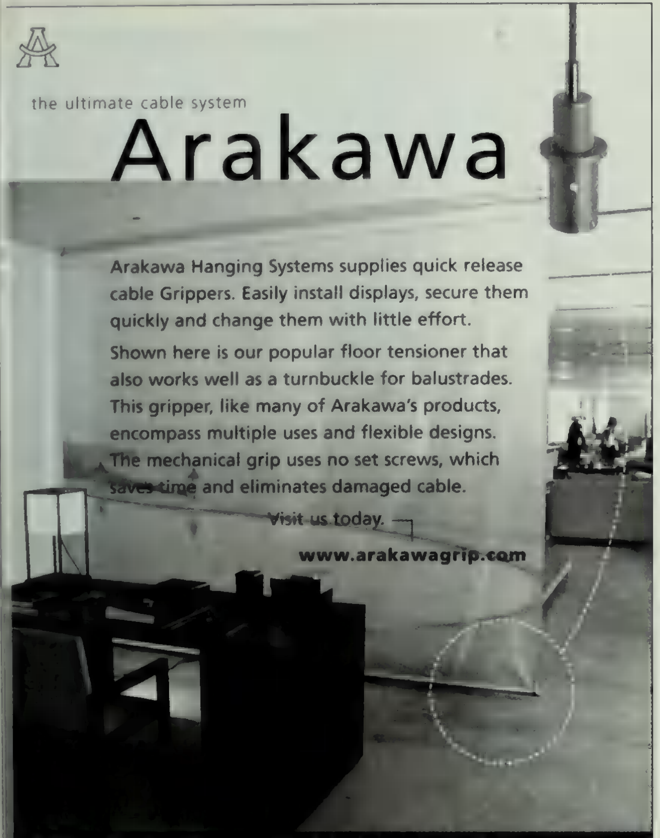

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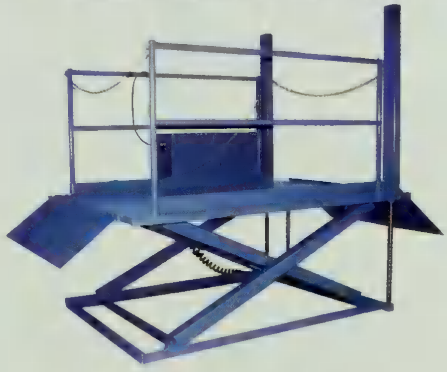

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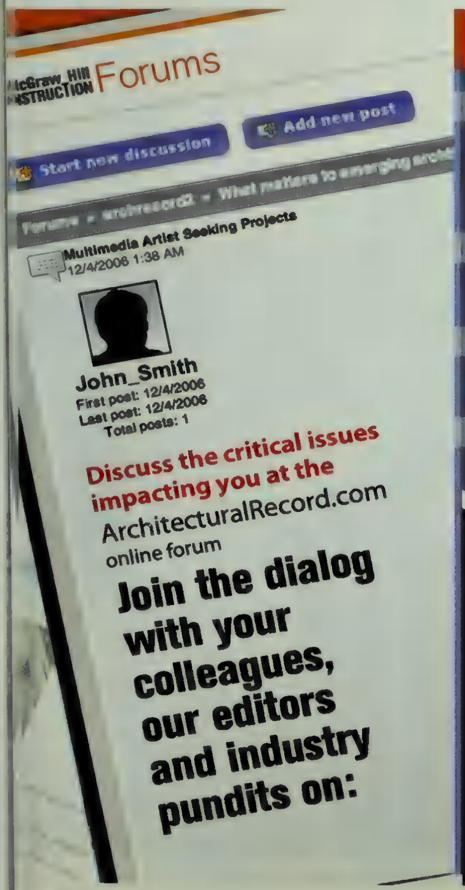

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12/4/2006 1:38 AM

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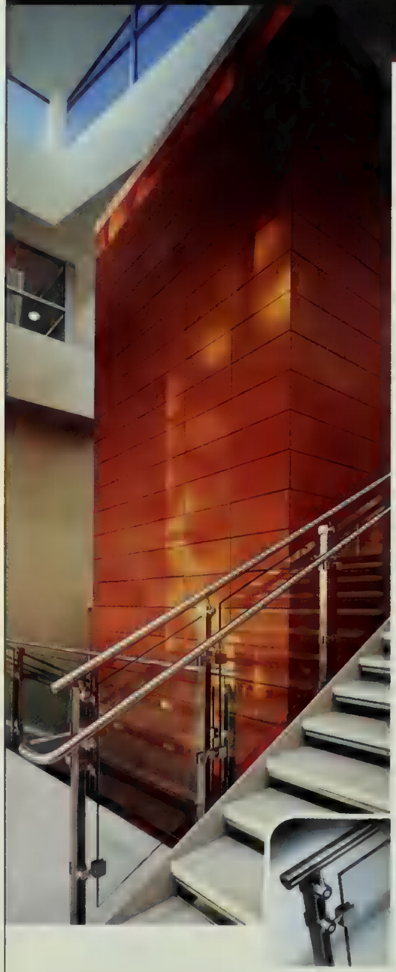

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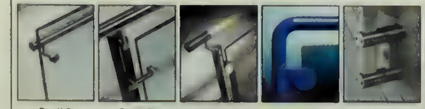

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AIA 150
Workshop for the 2006 Guidelines for Design and Construction of Health-Care Facilities
San Jose, Calif.
June 22–23, 2007
Designed for architects, engineers, facility managers, project managers, and contractors, this two-day program reviews codes and standards for health-care facilities, including changes and new material in Guidelines 2006, and features a lecture format with open forums and question-and-answer sessions. Visit www.aia.org.

Architecture Camp
Pittsburgh
June 25–August 17, 2007
Architecture Explorations, a series of one- and two-week camps dedicated to architectural design, construction, form, and function, and presented in collaboration with Carnegie Mellon University's School of Architecture, are available for children ages four to 13, as well as high school students. The architecture camps are held at Carnegie Mellon University's architecture studios and in the Carnegie Museum of Art's Heinz Architectural Center. Call 412/622-3131 or visit www.cmoa.org.

Competitions

Open Architecture Prize
Deadline: Ongoing
The $250,000 Open Architecture Prize is the largest prize in the field of architecture and is designed to be a multiyear program that will draw competition from design teams around the world. Each year, a winning design will be selected from a field of low-cost, sustainable design projects and built in a selected community. The first project for the Open Architecture Prize will be an "e-community center," a centralized building equipped with Internet connectivity solutions designed to enable an entire community to access the transformative power of the Internet. The winning designs will be built as part of the prize and in alignment with the 50x15 Initiative, a program founded by AMD to connect 50 percent

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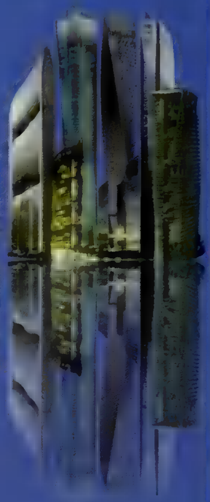

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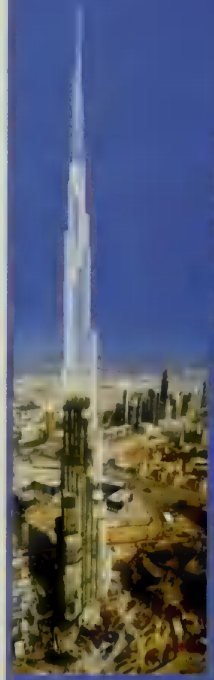

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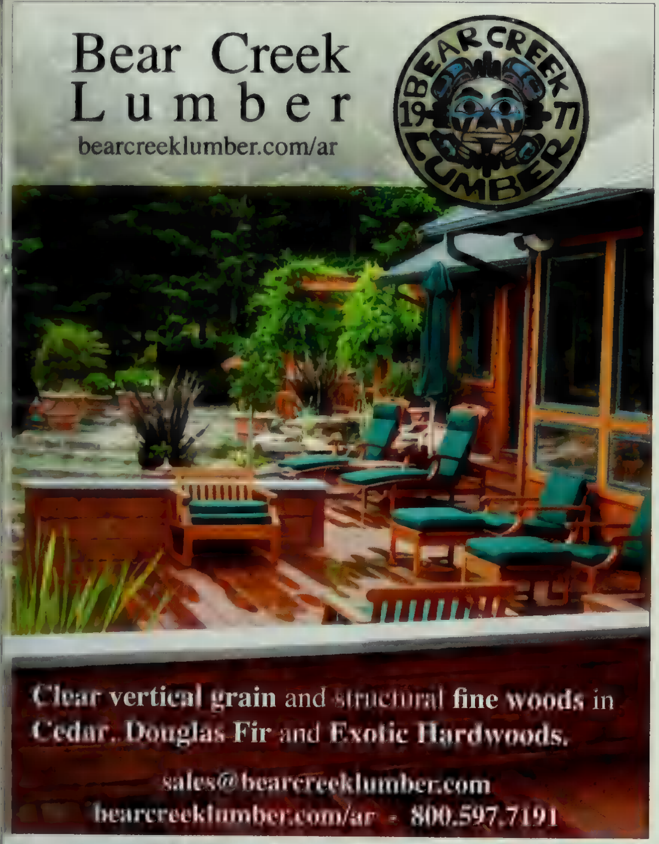

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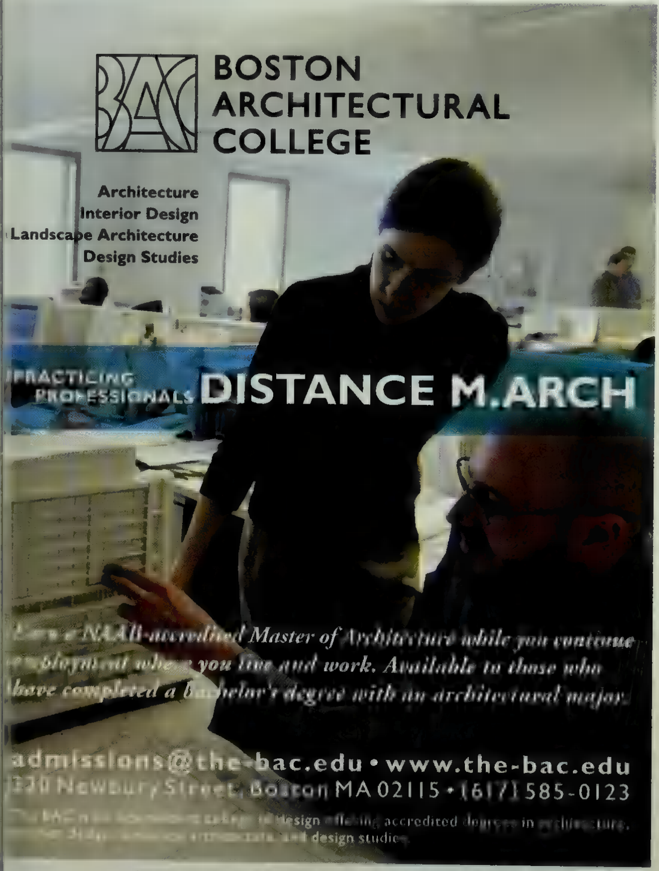

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Envisioning Gateway: A Public Design Competition for Gateway National Park

Submission Deadline: May 7, 2007

An international public design competition to create a new vision for Gateway National Recreation Area, a 26,000-acre national park located in New York. The goal is to generate innovative, visionary, and compelling designs that reflect the area as a regional resource and national environmental asset. Visit www.vanalan.org/gateway.

Promosedia International Design Competition

Deadline: May 11, 2007

The Caiazza Memorial Challenge is a competition of ideas for the design of a chair. For more information, visit www.promosedia.it.

Ample Sample 2007

Deadline: May 15, 2007

Ample Sample 2007 challenges designers to "rethink, reuse, upcycle," and repurpose carpet samples. Entrants are asked to create designs that transform samples into a beautiful, functional fixture, piece of furniture, or any other interior product. Visit www.amplesample.net.

AIA150

AIA Columbus Announces Transit Design Competition

Deadline: May 29, 2007

This competition will generate dialogue about the possibilities for the role of public transportation in Columbus, Ohio, with special emphasis on illustrating how multiple transportation modes can work together to provide a complete network that connects citizens with their community and sparks economic development. The competition will look for solutions for three specific sites prime for transportation infrastructure enhancements. For additional information, visit www.columbusrewired.org or call 614/469-1973.

The International Landscape Award 2007

Deadline: May 31, 2007

This award honors design that will enhance the quality of urban life through architectural, landscaping, social, economic, and ecological components. For further information, visit www.iula.com.

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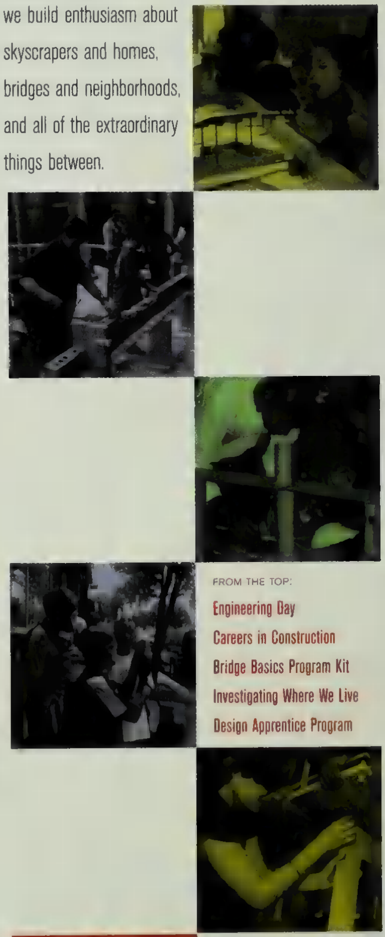
For decades the National Building Museum has inspired children and families to learn more about building, construction, design, and engineering. From our family festivals and our exhibitions, to our school programs and our curriculum kits, we build enthusiasm about skyscrapers and homes, bridges and neighborhoods, and all of the extraordinary things between.



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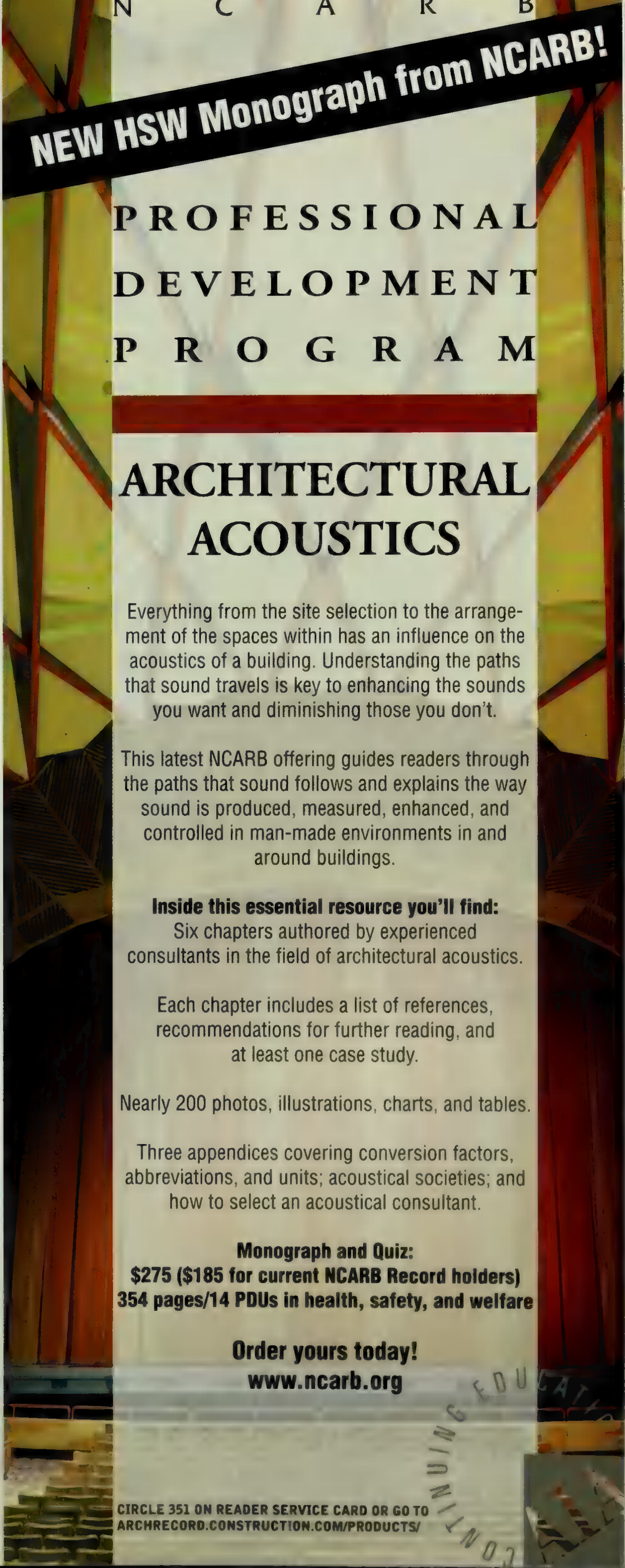

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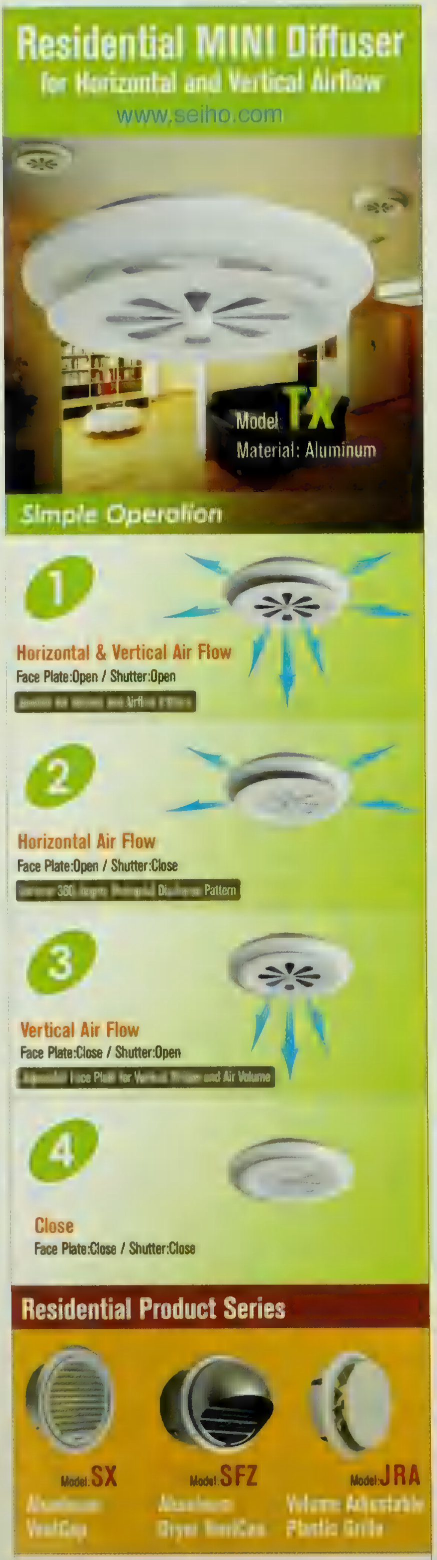
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Dates & Events

AIA 150

The AIA NY Chapter's Emerging New York Architects Call for Entries: Schedium

Registration Deadline: June 1, 2007

Submission Deadline: June 15, 2007

To celebrate the drawing abilities of today's emerging architects, Schedium extends an invitation to submit portfolios. Artists who are selected from the portfolio competition may be asked to participate in the live drawing series. International practitioners are welcome. Visit www.schedium.org.

Shrink This House

Deadline: June 15, 2007

This competition is open to all architects and architecture students. The winning entries will be published in the September-October issue of *Florida Insideout Magazine*. The program challenges the participants to take a 5,687-square-foot, two-story modern house going up in Miami Beach and, in expectation of high energy prices and an aging population in 2025, shrink it, creatively, to 2,000 square feet. For images, floor plans, and specs, visit www.floridainsideout.com or call 305/532-7027.

Heated Issue

Deadline: June 17, 2007

This competition asks participants to create an educational campaign to raise public awareness of the problem of global warming and the contribution of our daily lifestyle and activities to this phenomenon. The aim of the campaign is to provoke people to think about the issue and how their individual consumer choices and energy consumption enter into the equation. To learn more, visit www.design21sdn.com.

Child's Play

Deadline: June 17, 2007

This competition focuses on children and asks designers to create an affordable object (or objects) that encourage children to cultivate their own imagination and creativity. The function is open to interpretation and the objective of the design should be to encourage exploration and to inspire a child to derive his/her own associations and invent their own interaction or way of playing with the object. Visit www.design21sdn.com.

Shelter Me

Deadline: June 17, 2007

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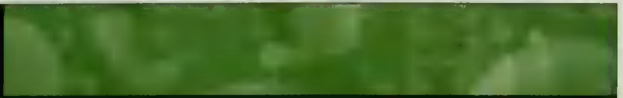

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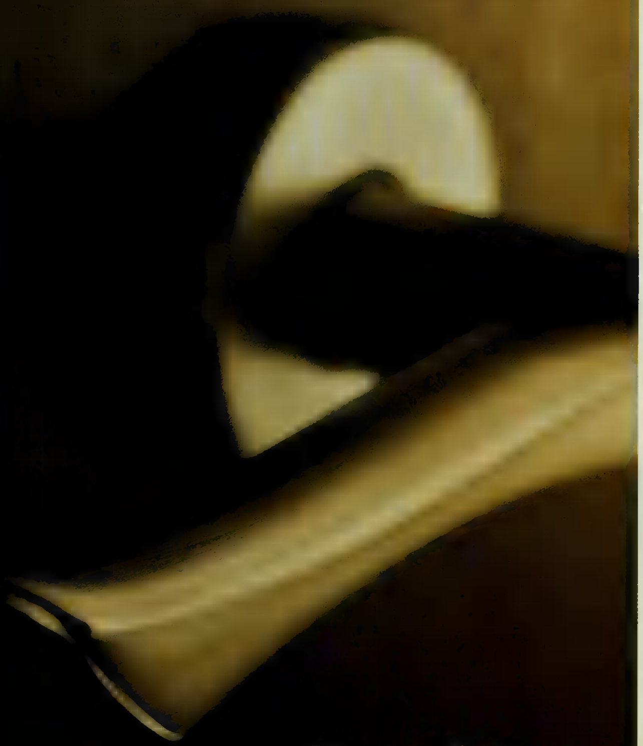

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world. Shelter Me challenges designers to present a cost-effective short-term shelter that is affordable, lightweight, strong, and easily deployed. Visit www.design21sdn.com.

21st International Excellence on the Waterfront Awards
Deadline: June 29, 2007
This program will honor waterfront projects, plans, citizen efforts, and student awards. Winners will be announced on November 2 during the "Urban Waterfronts 25: the Next Wave" conference at the Seaport Hotel in Boston. For program details and entry forms, call 202/337-0356 or visit www.waterfrontcenter.org

AIA 150
The American Institute of Architecture Students' (AIAS) 2nd Annual National Student Design Competition
Deadline: November 5, 2007
Developed for advanced students, this competition will challenge participants to design a pediatric outpatient rehabilitation center and family support facility utilizing architectural aluminum building products and systems. Visit www.aias.org/kawneer.

Just Jerusalem
Deadline: December 31, 2007
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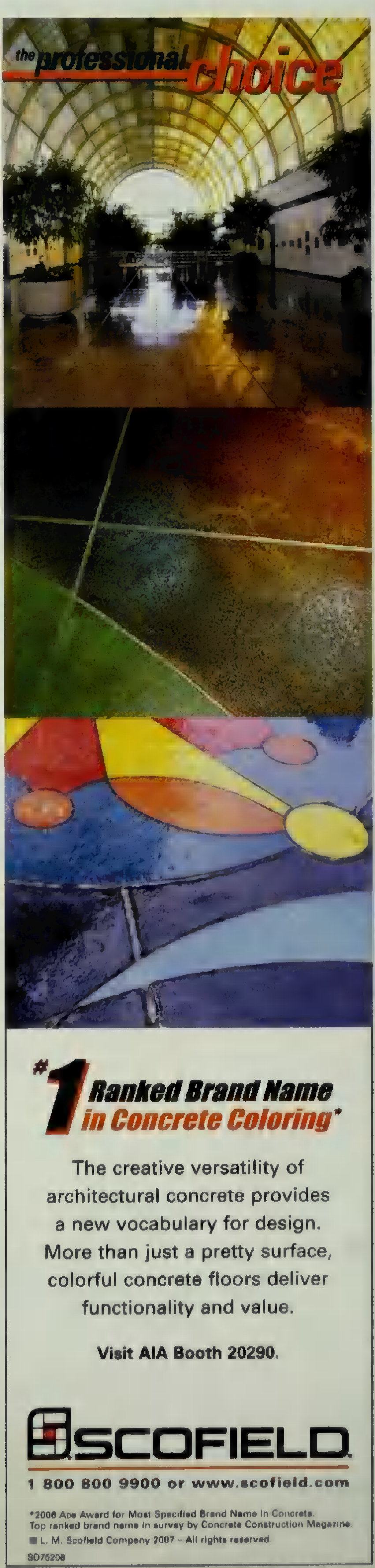
E-mail event and competition information two months in advance to elisabeth_broome@mcgraw-hill.com.



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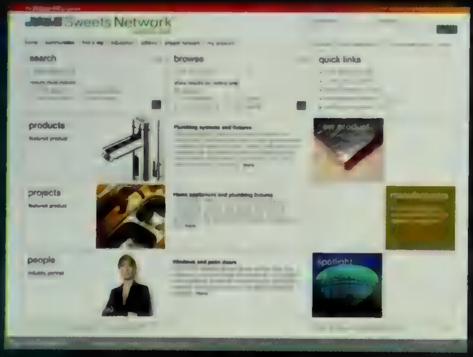

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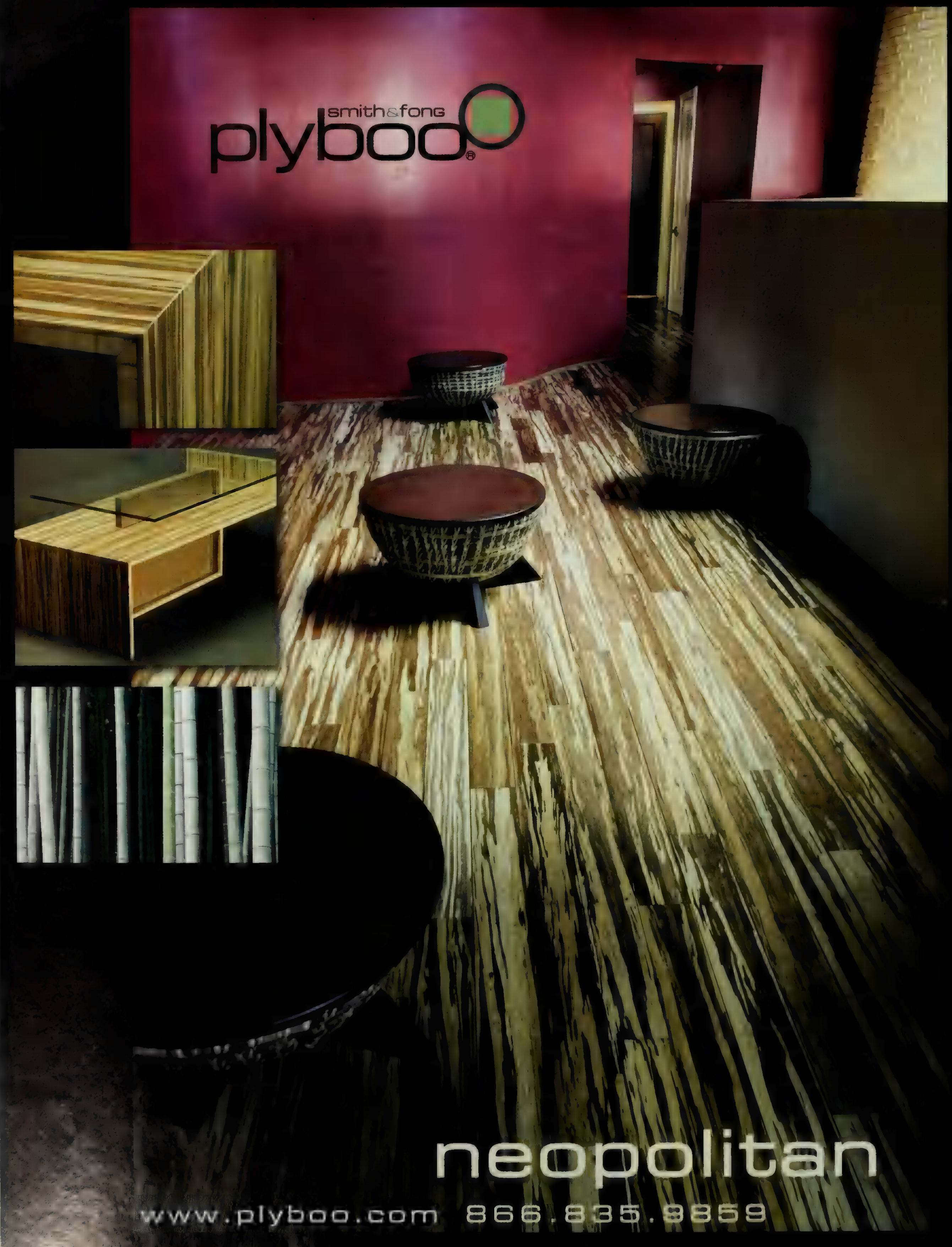

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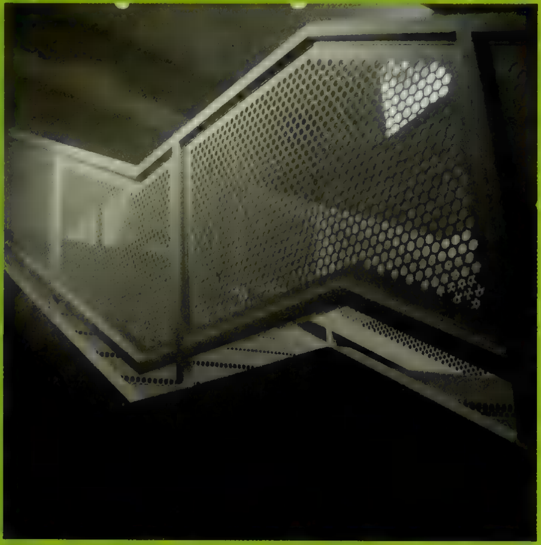

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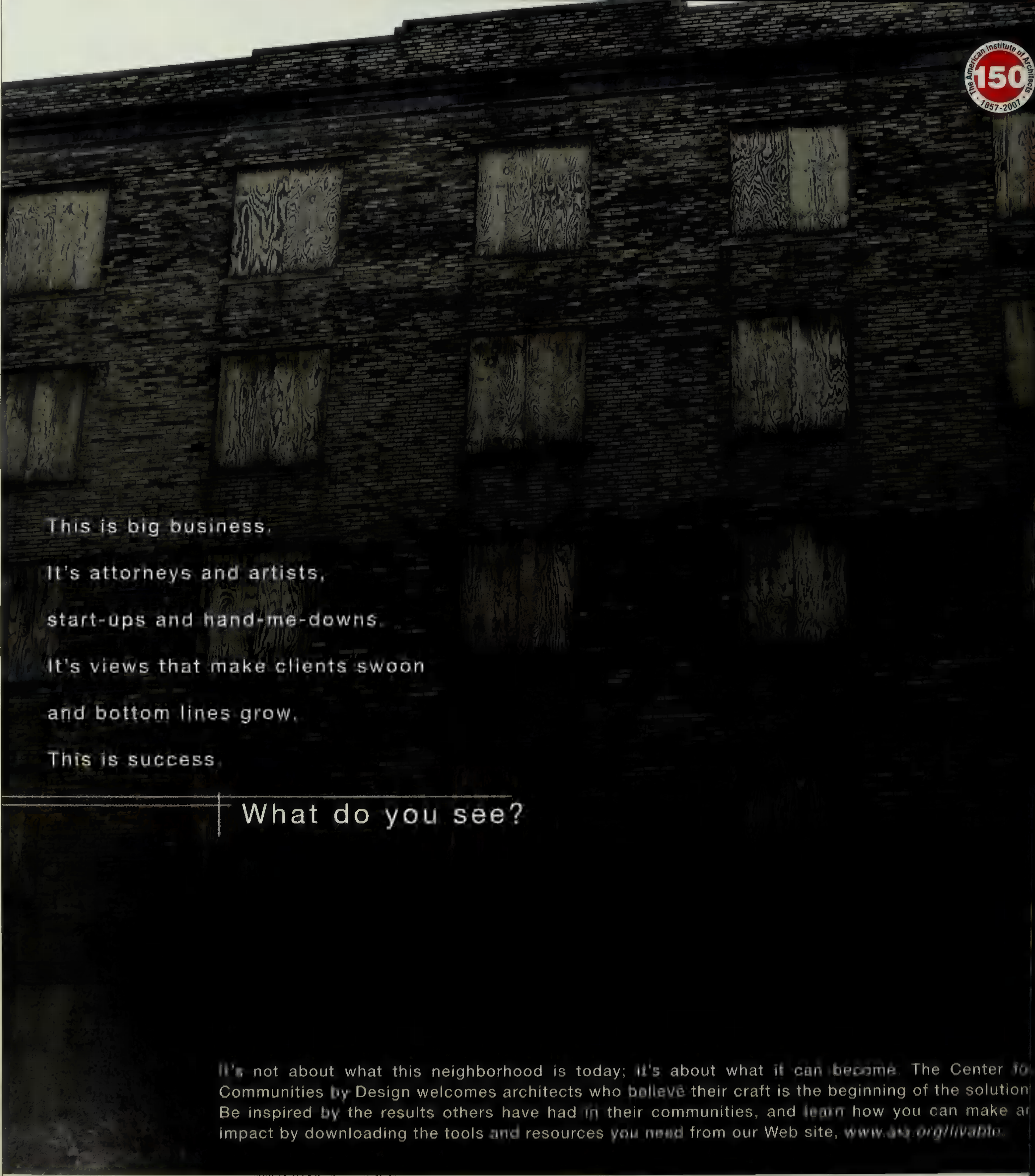
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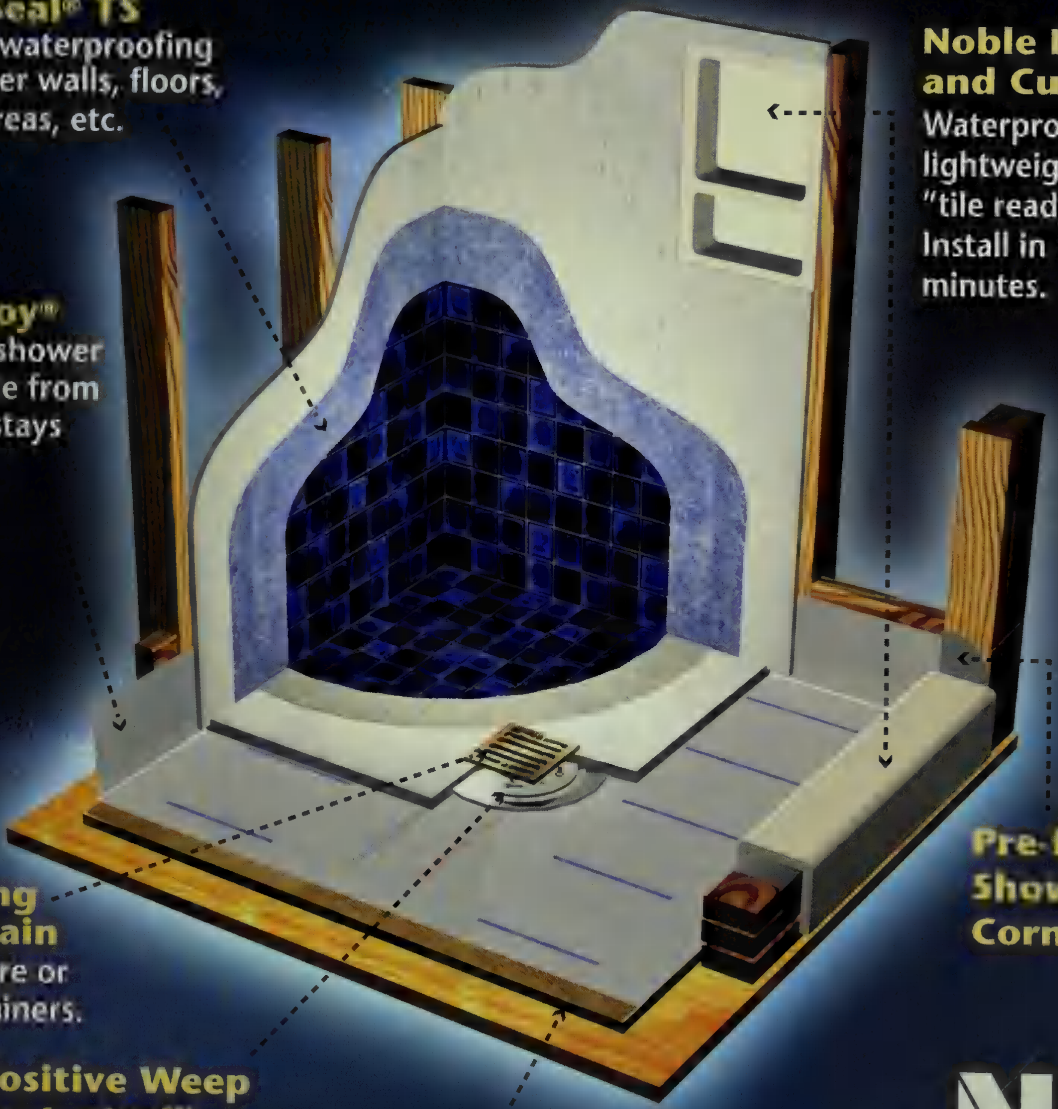

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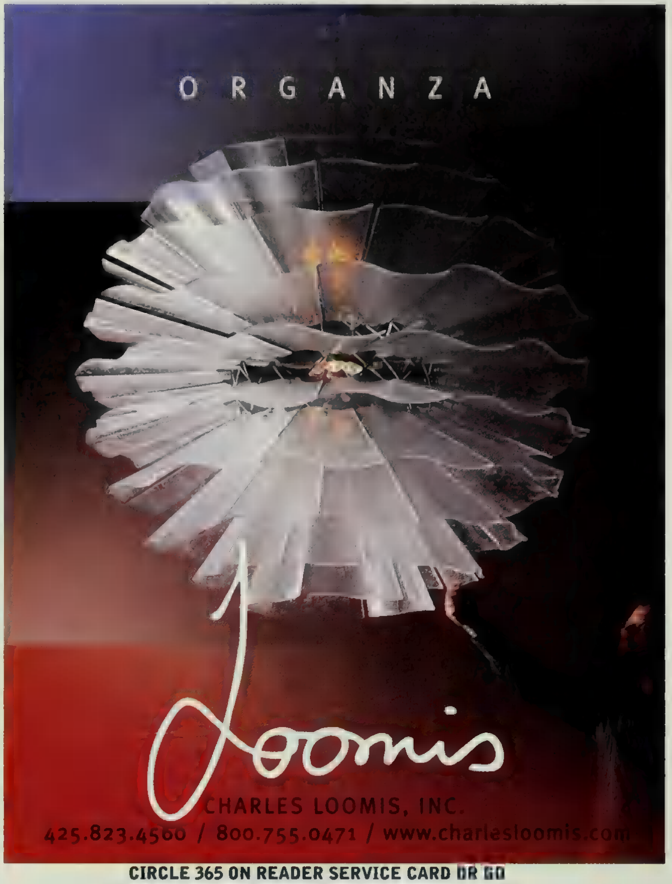

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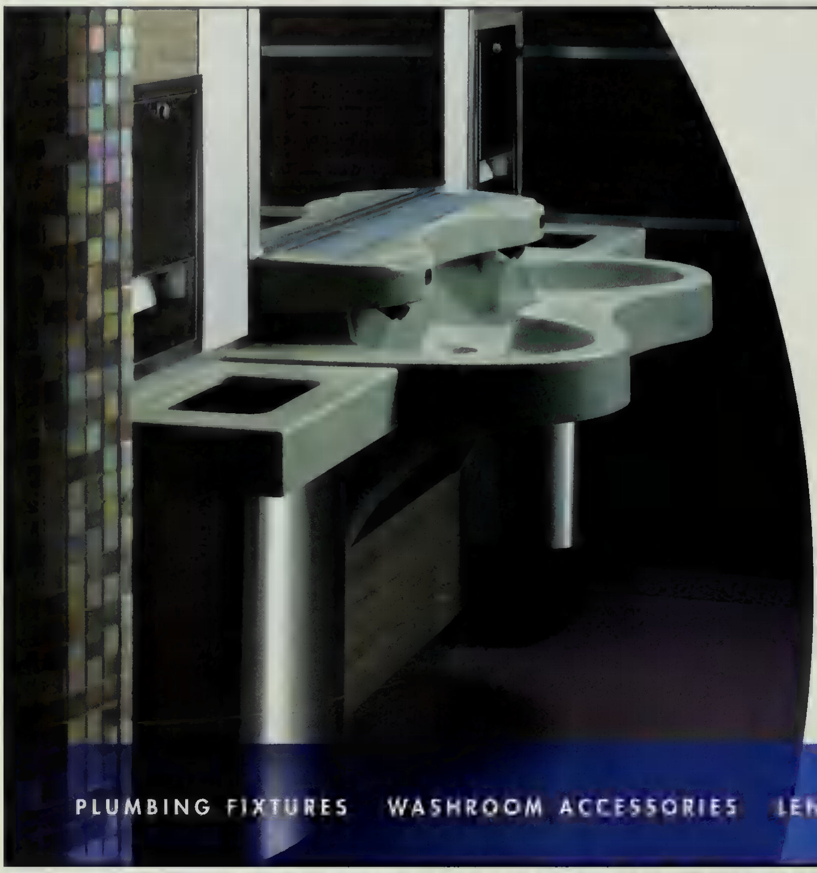

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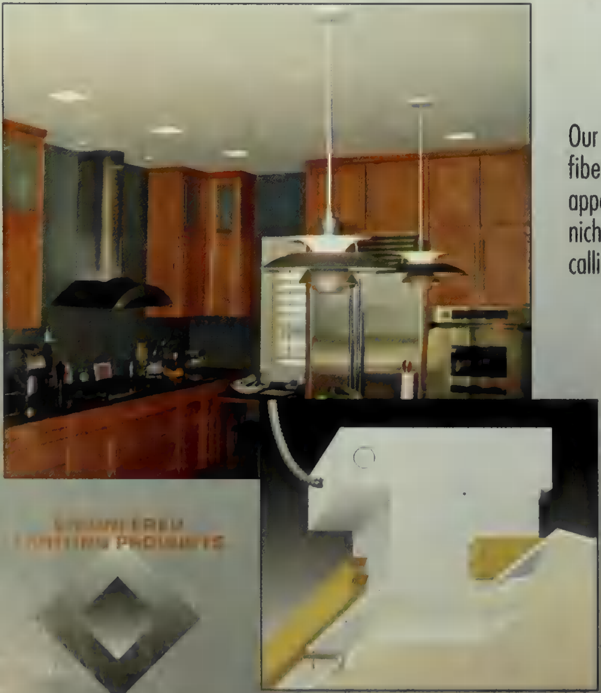

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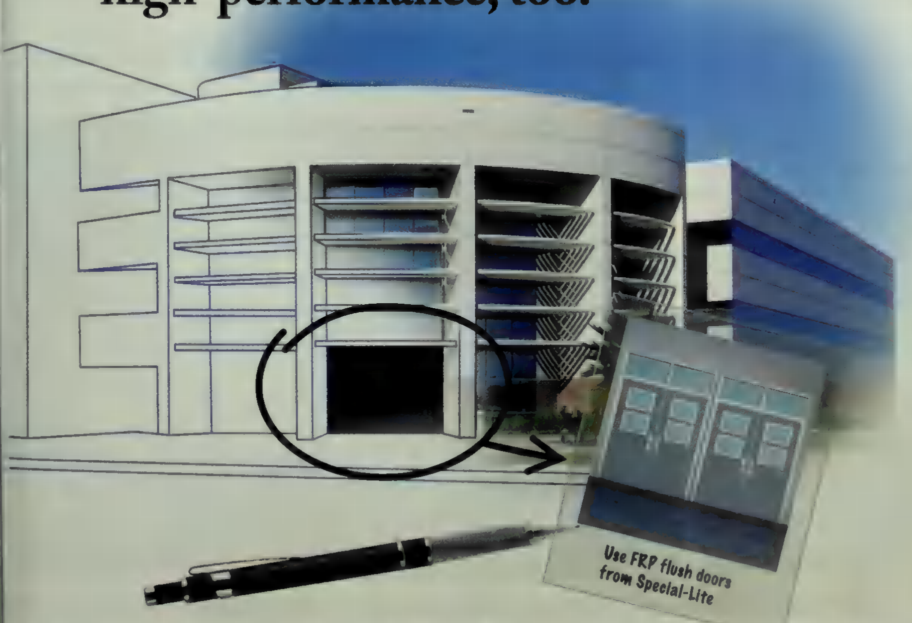
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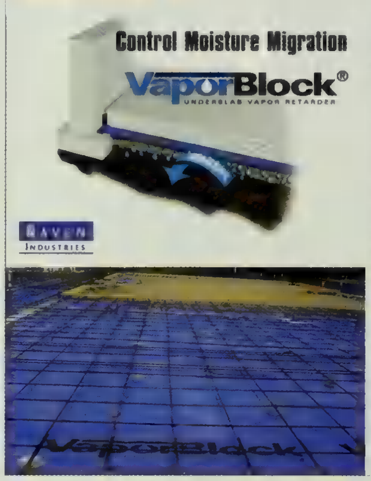

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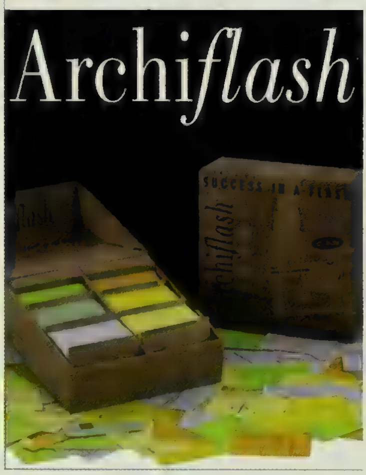

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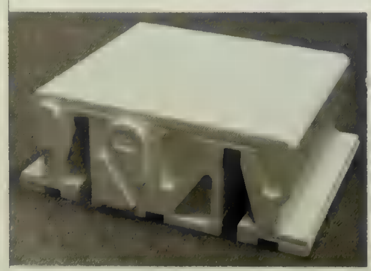

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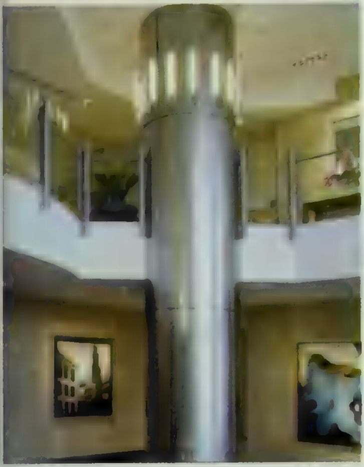

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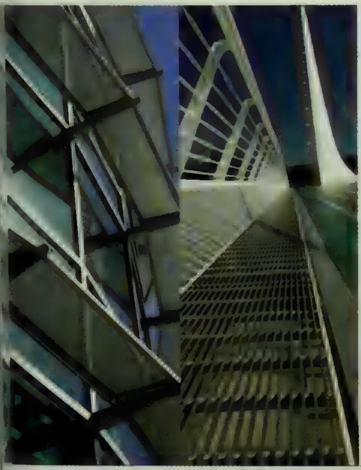

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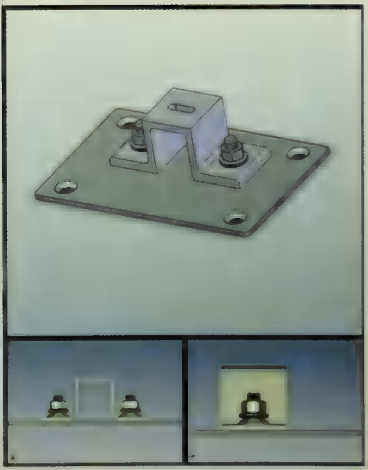

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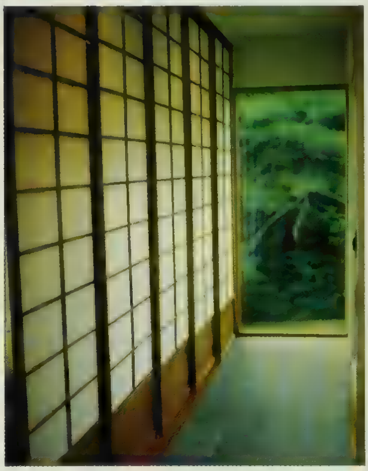

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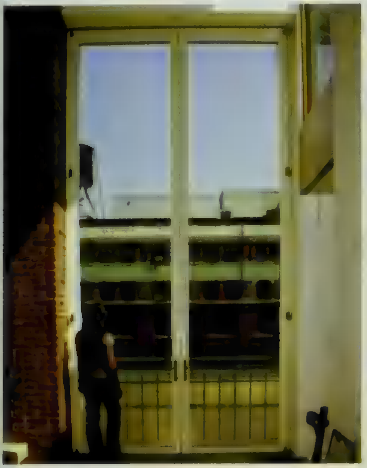

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Next-Generation Daylighting

Kalwall Corporation

Kalwall 100 is the latest innovation in Kalwall's high-performance, super-insulating Wall and Skylight Systems, which meet energy performance standards formerly achieved only by Kalwall+ Nanogel, which at 2-3/4-in.-thick holds a .05 U-value. The Kalwall 100 exterior panel, which has a U-value of .08, is 4-in.-thick and increases the structural capabilities of earlier versions to meet the worldwide demands of new building regulations for stiffer, stronger cladding. Kalwall meets the most demanding codes.

800-258-9777
www.kalwall.com

| Circle Reader Service #171

Pre-Engineered Door Hardware

HDI Railings

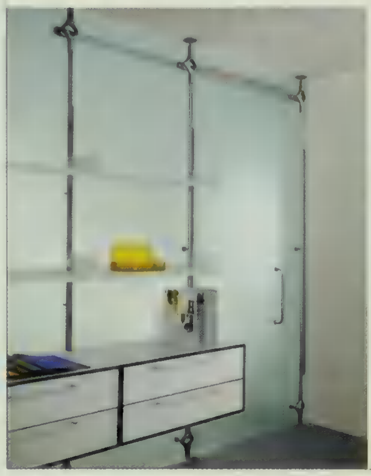
From minimalist simplicity to stylish sophistication, HDI offers pull handles to suit every taste. Featuring nearly 60 distinct designs made from stainless steel, wood, glass and stone, you're sure to find a solution to your need. Many pull handles come in a variety of sizes, and the HEWI CombiSystem features a patented method of adjustment, allowing easy installation on existing doors.

717-285-4088
www.hdirailings.com

| Circle Reader Service #169

Movable Glass Partitions

Luconi-usa



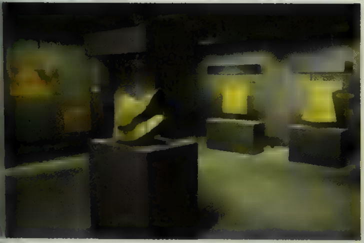
Osso is a real biomechanical sculpture, characterized by the peculiar aluminum bar, which has the double function of supporting panels and pieces of furniture. It stands simply and securely, either by putting pressure between floor and ceiling or can be self-supporting in some configurations, offering a wide range of panels and materials for partitions, doors, furnished walls, closets, desks, bookshelves, drawers, and containers. This pure, functional element, like a dress, finds space in applications such as homes, offices, retail, kitchens and bathrooms.

310-734-8782
www.luconi-usa.com

| Circle Reader Service #172

Anti-Reflective Glass

IGT Glass



Luxar anti-reflective glass is perfect for any glass application where glare and reflection are not wanted. Luxar reduces glare and reflection to less than 0.5%. It is perfect for museums, store fronts, stadiums, restaurants, projection rooms and display cases. It is available on low iron float glass for maximum clarity in 2mm to 12mm thicknesses to meet any project requirement.

480-767-8220
www.luxar.ch

| Circle Reader Service #170

Curved Translucent FRP Panel Systems

Major Industries, Inc.

Looking for unique design possibilities? TransCURVE™ translucent building panels from Major Industries provide quality daylighting and exceptional performance with the added benefit of a striking, unique appearance. TransCURVE™ panels feature a premium architectural-grade FRP exterior skin that blocks damaging UV rays while wrapping your building's occupants in the glow of glare-free natural light. Let them show you how their skilled staff and field-proven daylighting products can enhance your next project.

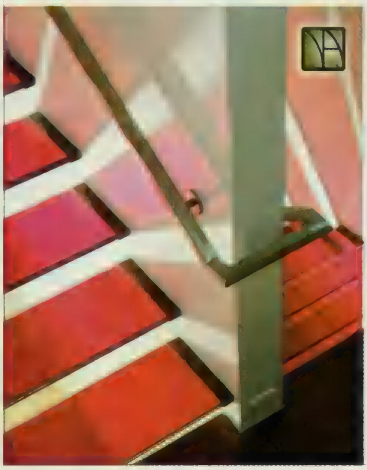
715-842-4616
www.majorskylights.com
AIA Booth #15079

| Circle Reader Service #173

TO ADVERTISE: Contact Deidre Allen
T: (212) 904-2010 / F: (609) 426-7136
deidre_allen@McGraw-Hill.com

Treads in Red

Nathan Allan Glass Studios Inc.



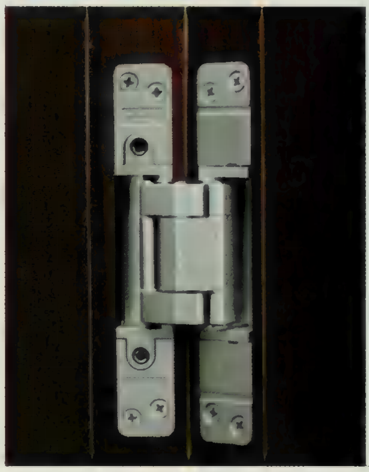
Two layers of tempered glass, with exclusive Nathan Allan Glass Sandpaper on the walking surface. Glass Sandpaper is highly rated through ASTM D2047 testing for both wet and dry conditions. Their unique bright red color finish is added to the underside of the glass treads to complete this unconventional stairway. Architect: Mark Pynn, Idaho. Contractor: Ken Herich, Idaho. Visit their booth, #20067 at the AIA show in San Antonio, May 3-5, 2007. Barry Allan, Director. Email bm@nathanallan.com

604-277-8533
www.nathanallan.com
AIA Booth #20067

Circle Reader Service #174

3-Way Adjustable Heavy Duty Concealed Hinge

Sugatsune America, Inc.



Manufacturer of commercial and residential hardware, Sugatsune has released new 3-Way-Adjustable Hinge, HES3D-190. This hidden hinge provides flush surface, adding clean appearance to the design. Maximum door weight (110-lb./2 pieces) and door size (H94-31/64-in.x W35-7/16-in.). Available in 2 finishes, matte silver or matte gold. Hinge allows vertical, horizontal and depth adjustment, even after installation. Successfully passed 500,000 open/close private cycle test. Visit their booth No. 13051 at AIA expo07.

800-562-5267
www.sugatsune.com
AIA booth No. 13051

Circle Reader Service #177

Fire-Resistant Glass

Pilkington Fire Protection Glass North America

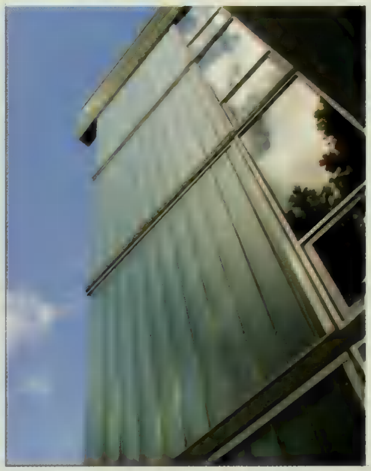
Pilkington Pyrostop™ is available with many options including opaque films, colored interlayers, surface designs and lightly sandblasted. Pilkington Pyrostop™ can also be combined with any of the Pilkington products to meet your design needs. For more information contact Technical Glass Products or visit their web site.

800-426-0279
www.fireglass.com

Circle Reader Service #175

Channel Glass Systems

Technical Glass Products



Pilkington Profilit™ channel glass from TGP soars up to 23 feet, can be installed vertically or horizontally, and formed into straight or curved walls. It is available in a variety of textures and colors with varying degrees of translucency, allowing light through while maintaining privacy. Pilkington Profilit can be used in interior or exterior applications, with Nanogel® insulating aerogel to provide energy efficiency.

800-426-0279
www.tgpamerica.com

Circle Reader Service #178

Trimless... with Invisible Hinges

Studco Building Systems US

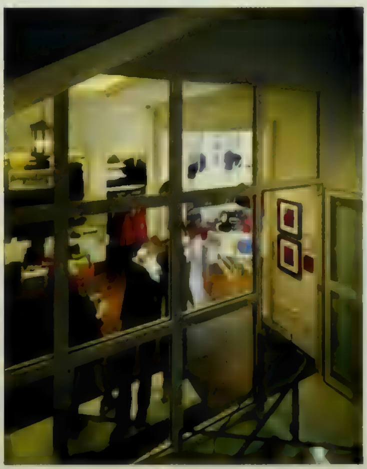
EZY Jamb... Now even better. The combination of a trim-free and invisible hinge gives the flush finish door jamb system the look that has been sought after for many years. EZY Jamb is a split-type jamb manufactured from cold rolled steel to produce a strong and secure assembly. The patented jamb comes with perforated sides for flush finishing giving the doorway a clean line look. Fax number 585-265-6678. Email mail@studcosystems.com

800-675-8023

Circle Reader Service [illegible]

Fire-Rated Glass & Framing

Technical Glass Products



Imagine full lite glass doors that give the same fire protection as solid steel. TGP offers a complete system of Pilkington Pyrostop® glass in narrow profile Fireframes® framing. Complement the door with a matching transom and sidelites, fire-rated up to two hours. Framing comes factory-finished to your specifications, ready to install. Give your customers the look they want without compromising safety.

800-426-0279
www.fireglass.com

Circle Reader Service [illegible]

CIRCLE # ON READER SERVICE CARD OR GO TO HTTP://ARCHRECORD.CONSTRUCTION.COM/READERSERVICE/READERSERVICE.ASPX

Fabricated Adjustable Louvers

The Airolite Company

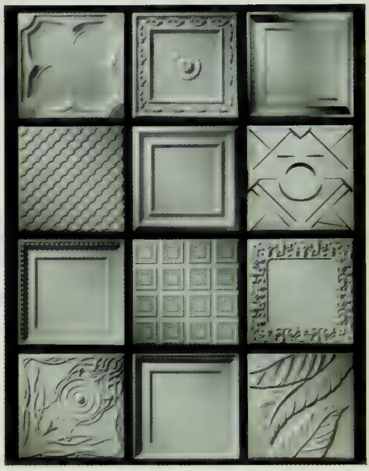
Airolite continues to expand its line of fabricated adjustable louvers with the addition of Louver Type 6785, a drainable adjustable louver. Featuring a 6-in. frame depth with 45 degree drainable blades, Louver Type 6785 offers 44% free area. When open, the drainable blades provide excellent resistance to water penetration and high volume intake and exhaust ventilation. Airolite now offers six types of fabricated adjustable louvers available in 20-, 18- and 16-gauge material thickness and 4- to 6-in. frame depths.

740-373-7676
www.airolite.com

| Circle Reader Service #180

Ornamental Plaster Ceiling Tiles

Above View Mfg., By Tiles, Inc.



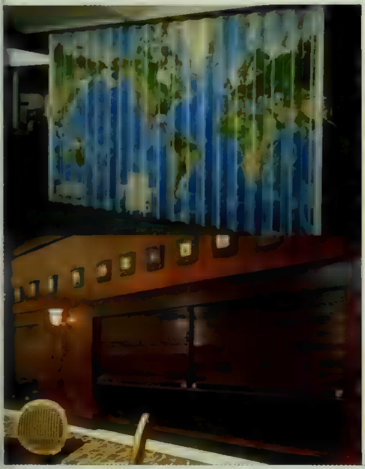
Above View ornamental plaster ceiling tiles are fabricated from a non-toxic, non-combustible, proprietary composition. They drop into any standard 15/16-in. T-Bar grid system. There are more than 50 standard designs, custom design work, and 1,300 custom colors and faux finishes available upon request.

414-744-7118
www.aboveview.com

| Circle Reader Service #183

Doors for Interior Architecture

Woodfold Mfg., Inc.



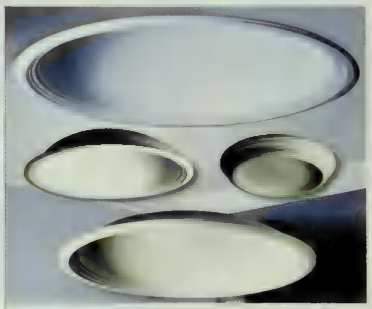
Some will say that nothing is more beautiful than wood. Woodfold Mfg., Inc. would agree. Woodfold Mfg., Inc. custom made accordion and roll-up doors (available in hardwood and non-hardwood finishes as well) are both functional and beautiful. Woodfold Mfg., Inc. has models available for use as sight, security, and acoustic applications. Its solid hardwood roll-up doors coil conveniently overhead. And, to assure on time completion of your projects, Woodfold Mfg., Inc. has the industry's best production cycle. Fax number 503-357-7185

503-357-7181
www.woodfold.com/AR
AIA Booth # 17067

| Circle Reader Service #181

Domes

Architectural Products by Outwater, LLC



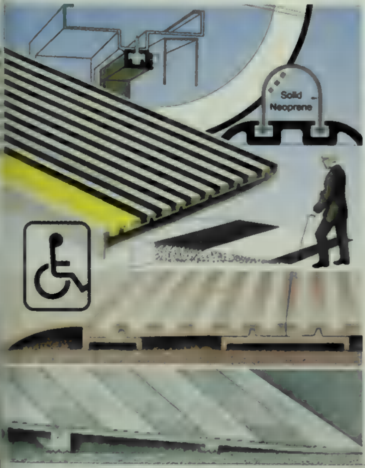
Outwater's new lines of Shallow Decorative Polymer Domes, Fiberglass Round and Elliptical shaped Domes, and Domes with Integrated Light Coves are not only intended to add beauty and refinement within any setting in which they are utilized, but also to address and to accommodate otherwise insurmountable technological challenges often encountered when installing large, dimensional objects in new and existing residential and commercial ceiling applications. Outwater's new Domes are available in both "one step" surface mounted or recessed installation formats, and feature one-piece construction.

800-835-4400
www.outwater.com

| Circle Reader Service #184

ADA- & ANCI-Compliant Access Systems

Zero International, Inc.



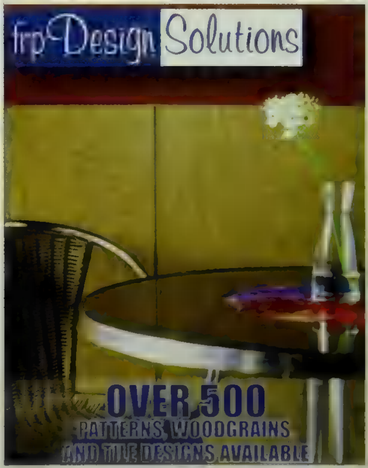
ZERO International manufactures a complete line of ADA- and ANCI-compliant components: ramps, saddles, thresholds, wheelchair-accessible shower entry, "light-spring" action head/jamb and door bottom gaskets, stair nosings and detectable warning strips, child finger guards, unigear and unipin hinges. All available in their catalog, on their web site, or through their engineering department.

800-635-5335
www.zerointernational.com
AIA Booth #7075

| Circle Reader Service #182

Decorative Wall Panels

Crane Composites, Inc. (formerly Kemlite Company, Inc.)



frpDesign Solutions is a family of decorative wall panels that provides an alternative to traditional wall coverings such as ceramic tile, wood paneling or vinyl wall coverings. Offering both functionality and design, products in the frpDesign Solutions line are made of a moisture-resistant frp panel with a decorative finish that includes myriad colors, patterns, and woodgrains, as well as a tile-look panel. Available with over 500 choices, frpDesign Solutions is easy to install and maintain. For more information, visit Kemlite on the web.

800-435-0800
www.frpdesignsolutions.com
AIA Booth #15254

| Circle Reader Service #185

TO ADVERTISE: Contact Deidre Allen
T: (212) 904-2010 / F: (609) 426-7136
deidre_allen@McGraw-Hill.com

Custom Ceiling Panels

Eventscape Inc.

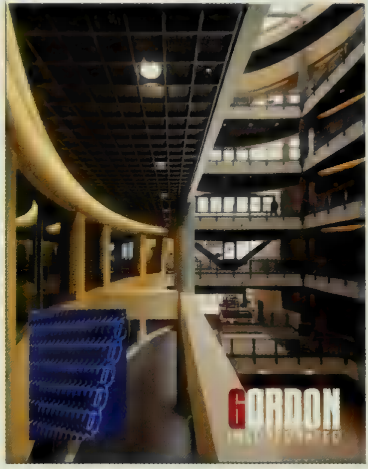
The Pier at Caesars Palace features an Eventscape element in which framed fabric panels float suspended from the ceiling, evoking the waves of the seascape nearby. Soothing waves of light projected on the ceiling structures create the illusion of a relaxing stroll along the beach. This is one example of the numerous custom solutions provided by Eventscape, engineered and fabricated to meet your specifications. Designers have the freedom to create virtually any form, clad with any material, at any scale. View their complete portfolio on their web site. "Create without boundaries"™

416-231-8855
www.eventscape.net

| Circle Reader Service #186

Ceiling System Solutions

Gordon Incorporated



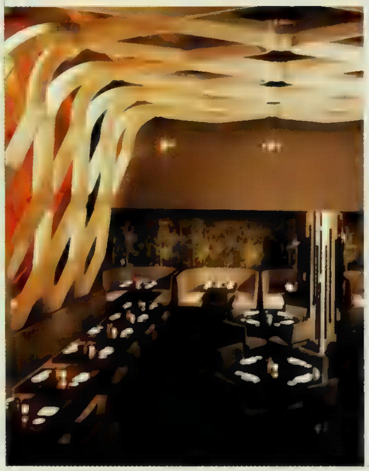
MILLENNIUM® by Gordon can be featured in flat or curved wall and ceiling systems, as column covers, acoustical baffles, infill panels for railings, display shelves and sunscreens. Crafted from aluminum, MILLENNIUM panels' tubular design allows for visually interesting "back-light" effects. MILLENNIUM can be finished in the color of your choice.Email sales@gordonceilings.com

800-747-8954
www.gordonceilings.com
AIA Booth #21037

| Circle Reader Service #189

Custom Molded Architectural Shapes

Formglas



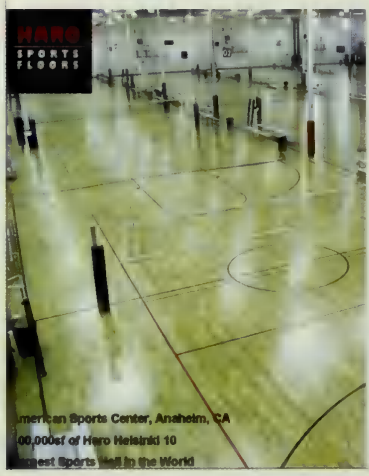
Custom molded architectural shapes by Formglas expand design opportunities for interiors and exteriors. Lightweight and durable GRG and GRC components are cast in an endless array of shapes, textures and color finishes. Their team of trained professionals work with you to find practical and easy to install solutions that enhance aesthetic appeal. Email info-ar3@formglas.com

416-635-8030
www.formglas.com

| Circle Reader Service #187

Sports Floors

Haro Sports Floors


HARO
SPORTS
FLOORS
merican Sports Center, Anaheim, CA
00,000sf of Haro Helsinki 10
gest Sports Hall in the World

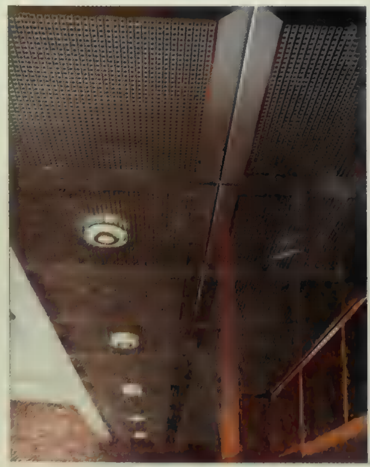
Athletes shouldn't suffer through injuries due to a poor performing sports floor. Athletic Floor Systems provides the best performing, safest and lowest cost gymnasium floors available. AFS supplies sports floors for competition gyms, sports arenas and multi-purpose facilities. There are more than 7500+ installations in over 65 countries. Demand performance, safety and low cost in your next sports floor.

800 323 6792
www.haro-usa.com

| Circle Reader Service #190

Decorative Metal Ceilings

Gage Corporation, Inc.



The Gage Corporation International has been designing and manufacturing decorative metal ceilings since 1989. Gage ceilings feature more than 50% post-consumer recycled material and are visually rich, functional, and versatile as a design medium. Custom collaboration is encouraged.Email gage@centurytel.net

800-786-4243
www.gageceilings.com

| Circle Reader Service #188

Green Roof Systems

Homasote Company

Homasote Company, one of America's leading green building products manufacturers and nailbase roof insulation's originator, has received Factory Mutual approval for N.C.F.R.® Thermasote® on steel roof decks. Use it to specify attractive, residential-looking roofs for multi-family, mixed-use, commercial, medical and other construction. For an alternative green roof system, excellent for conventional and LEED® construction, specify Firestall® Roof Deck with N.C.F.R. Thermasote. Wind uplift tests show these Homasote® systems make code in wind-prone areas.

800-257-9491 Ext. 1211
www.homasote.com/thermasote
AIA Booth #10053

| Circle Reader Service #191

Paint & Anodize Finishes

Linetec

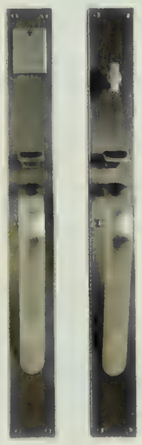
Linetec offers "Introduction to Coatings: Field Performance and the Application Process" as a registered online learning program to help you attain your AIA Continuing Education credits. This program compares the field performance of architectural Kynar®/Hylar® paint, anodize and powder coat finishes. Also covered are the steps associated with each application process. The presentation is available on-demand from Linetec's Architect Resource Center located at www.linetec.com.

888-717-1472
www.linetec.com

| Circle Reader Service #192

Kitchen & Bath Hardware

Rocky Mountain Hardware



Introducing the Metro Collection–Rocky Mountain Hardware's newest and most complete offering for the contemporary aesthetic. This collection was thoughtfully designed to blend clean, simple lines with the warmth of solid bronze. And by creating a line inclusive of door and cabinet hardware all the way through paper towel holders and hooks, it allows for seamless integration of style throughout your project. View the entire collection online at www.rockymountainhardware.com.

888-552-9497
www.rockymountainhardware.com
AIA Booth #14067

| Circle Reader Service #195

Dramatic Fifth Walls

M-Boss Inc.

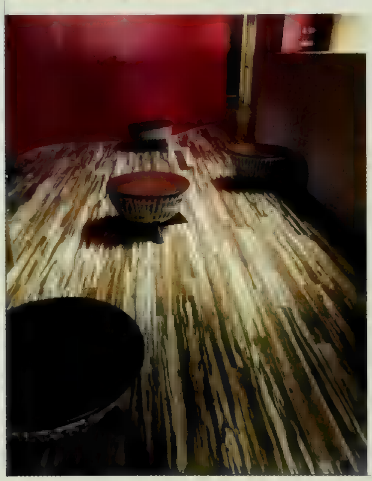
Enhance the overall design of space with a ceiling from M-Boss Inc. Choose from hundreds of patterns and finishes; in patterns ranging from sleek, contemporary styles to traditional designs replicated from turn-of-the-century originals. Available in three substrates: aluminum, solid copper and tin. Products are economically and promptly shipped direct to job sites.

877-29 M-Boss (877-296-2677)
www.mbossinc.com

| Circle Reader Service #193

Neopolitan Bamboo Flooring

Smith & Fong Company



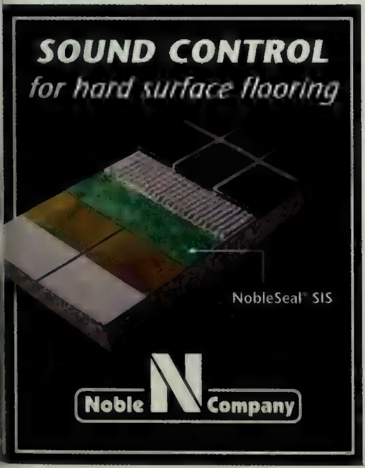
Combining cosmopolitan style with energizing contrast colors and exceptional durability, Neopolitan™ bamboo flooring is a commercial grade floor that can handle the toughest high traffic demands, from retail environments to public spaces. Bamboo through-and-through, Neopolitan has zero added formaldehyde and can contribute points to a LEED® project in four categories. Also available in bamboo-ply panels.

866-835-9859
www.plyboo.com
AIA Booth #12302

| Circle Reader Service #196

Reduce Impact Noise

Noble Company



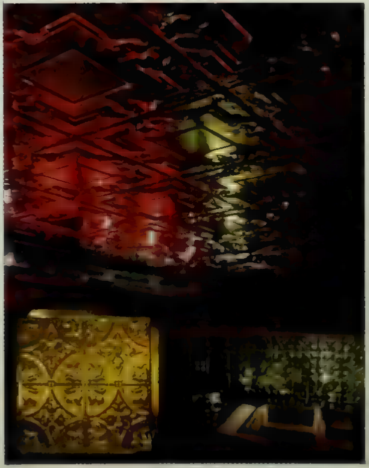
NobleSeal® SIS is a sheet membrane that reduces the impact noise produced by hard surface flooring (like tile and hardwood floors). SIS is only 3/64-in.-thick so it minimizes problems with transitions and the need to alter door and cabinet heights. It is effective at reducing noise (IIC=62; STC=59). SIS can be installed over all common substrates, even gypsum concrete and radiant heating systems. SIS can also protect thin-set tile from cracking and provide waterproofing. Visit their web site. Email richard@noblecompany.com

800-878-5788
www.noblecompany.com

| Circle Reader Service #194

Authentic Tin Products

The American Tin Ceiling Company



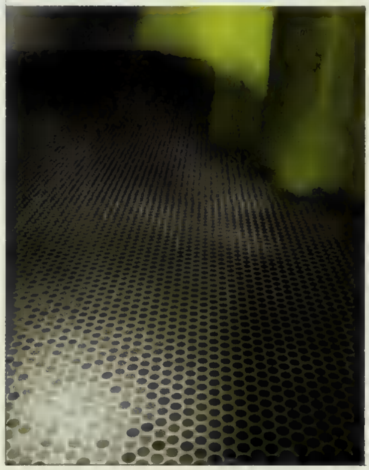
The nation's largest manufacturer and direct shipper of tin ceiling products offering over 55 powdercoat finishes in 32 patterns. Exclusive distributors of the innovative SnapLock and 3D Drop-in tin ceiling panel systems. Eight designers available for free design consultation. Orders shipped direct worldwide. Lowest price guaranteed for finished tin ceiling panels.

888-231-7500
www.americantinceilings.com

| Circle Reader Service #197

Porcelain Stone

Viva Ceramica



With three solid colors, brown, black and white, in porcelain through-bodied tiles with softly rough surfaces reminiscent of cast iron, you can't get more classical than this!Super simple patterns make this a series that's perfect for the most contemporary, elegant homes today. Available in the 20x60cm and the 60x60cm sizes, the tiles are edge-ground and thus naturally modular, born to be installed edge to edge.

www.cerviva.it

Circle Reader Service #[illegible]

Canopies & Walkway Covers

CPI Daylighting Inc

CPI provides single source responsibility for the entire Clearspan Canopy structure from the ground up. CPI's new Clearspan design for translucent canopies and walkway covers offers an economical, functional design with unequaled aesthetic appeal.Clearspan provides an excellent shelter and gives an open-air feeling by allowing natural daylight through to light up the area below.

800-759-6985
www.cpidaylighting.com
AIA Booth #12109

Circle Reader Service #[illegible]

Customized Sign System

APCO Sign Systems

APCO is pleased to offer the Arcadia 3-Sided Totem, an exciting new addition to the popular Arcadia sign system. The Arcadia Totem can be customized to include illuminated or non-illuminated directories, directional information, interactive or non-interactive digital displays, maps, advertising posters, and brochure holders. Available in three standard widths and various heights, the Arcadia Totem is well-engineered, design flexible and will surely enhance the image of any environment. www.apcosigns.com.

877-988-APCO
www.apcosigns.com

Circle Reader Service #[illegible]

Wall Coverings

Mardero, LLC

Mardero, LLC specializes in green and environmentally friendly decorative products. Their newest line of Japanese Wall Coverings is made with Diatomaceous Earth, sand and straw. Free of VOC. It has a natural ability to remove foul smells, and maintain room humidity. They also offer granite, marble, limestone and lami-stone.

650-625-1887
www.mardero.com

Circle Reader Service #[illegible]

Architectural Sheetmetal Products

CopperCraft

Structural integrity and performance are as important as aesthetics. Applying this understanding to the manufacture of its products is what sets CopperCraft apart from the competition. Their design, engineering, testing, and fabrication methods meet stringent structural and performance standards. You get unsurpassed quality, delivery, and custom service including a nationwide network of representatives. Their complete line of high quality architectural sheetmetal products include ornamental dormers, roof vents, roof drainage products, conductor heads, steeples, cupolas, and spires.

800-486-2723
www.coppercraft.com

Circle Reader Service #377

Surface Protection

PERMA·CRETE®

ICC approved PERMA•CRETE® surfaces provide architectural, load-bearing strengths of over 6,000 PSI compressive strength and are sealed, nonporous, and chemically resistant to solvents, stains, temperatures and UV rays. The products can be applied over most surfaces including building exteriors, driveways, sidewalks, bridge decks and pool interiors. PERMA•CRETE® renews instead of removes, enhances property values, and is a cost-effective way of eliminating surface deterioration and costly maintenance

800-607-3762
www.permacrete.com
AIA Booth #13222

Circle Reader Service #380

Architectural Surfaces

SOLI

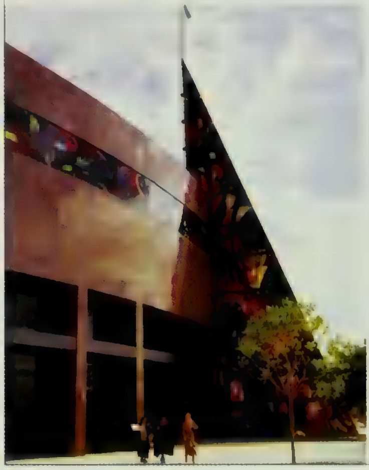
SOLI offers one-of-a-kind architectural surfaces for traditional and contemporary applications. From metal to marble, granite to glass, SOLI products bring distinctive design to floors and walls, indoors and out. They also offer a variety of unique porphyry, cobblestones and pavers. View their extensive collection of innovative tile and natural stone at www.soliusa.com.

800-410-7654
www.soliusa.com

| Circle Reader Service #381

Stained Glass Meets Codes

Bovard Studio Inc.



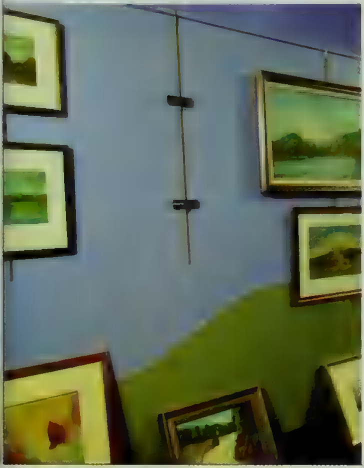
Bovard Studio Inc. Stained Glass has developed a proprietary process for laminating stained glass onto large panels of 1/2-in. laminated tempered glass to meet hurricane and earthquake codes. Pictured: West Angeles Cathedral's 108-ft.-high stained glass tower with its 652-ft.-long by 8 ft.-high stained glass clerestory band. Bovard Studio specializes in new stained glass windows, historic stained glass restoration and replication, recreating historic wood and metal frames, and new glazing systems designed for the preservation of stained glass windows. Visit their Booth #17176 at the 2007 AIA Convention in May.

800-452-7796
www.bovardstudio.com
AIA Booth #17176

| Circle Reader Service [illegible]

Art Presentation

Walker Display Incorporated



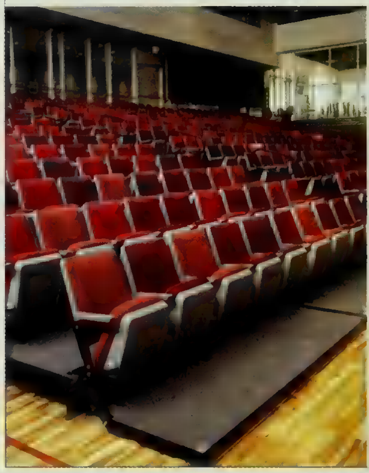
Life's all about change and so is Walker Display when it comes to art presentation. The Walker system frees you to explore all your options. No-More-Holes frees you to rearrange your artwork with ease and speed. Embrace change.

800-234-7614
www.walkerdisplay.com

| Circle Reader Service #382

Retractable Chair Seating

Irwin Telescopic Seating Company



As the use of retractable chair seating continues to grow, Irwin Telescopic Seating Company continues to expand their seating and design options. This type of seating is being used in sporting venues, education facilities, theaters, churches and corporate training facilities. They offer blow molded plastic seating, with or without upholstery, or the very comfortable and attractive auditorium style chair (featured photograph). In addition, a large variety of fabrics, finishes and powder coat options are available. Call or visit their web site for complete product information.

877-597-1122
www.irwintelescopicseating.com

| Circle Reader Service [illegible]

Self-Locking Gate Latch

D&D Technologies

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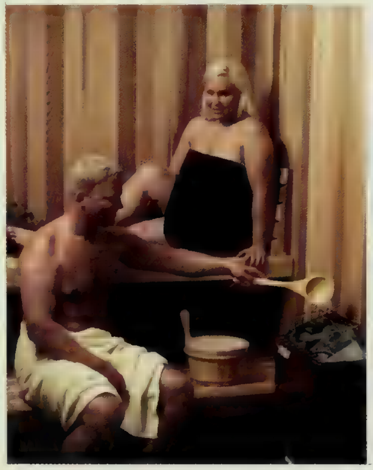

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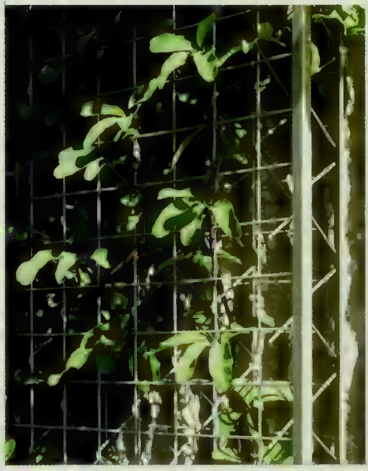

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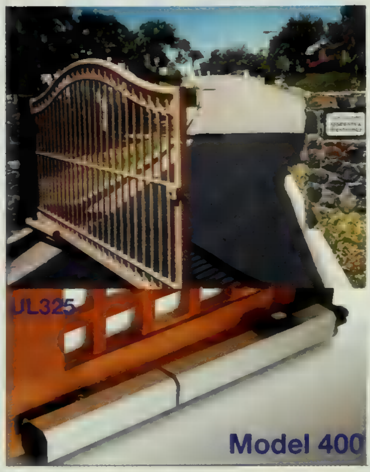

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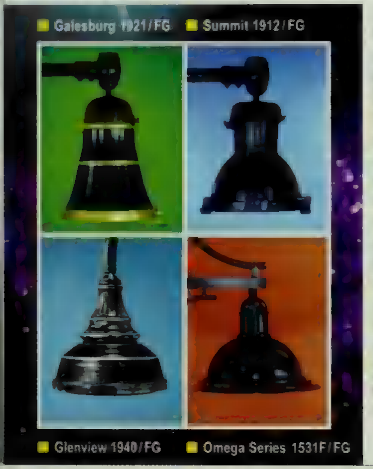

The International Dark Sky Association has given their approval to another group of Sternberg Lighting full cut-off Luminaires. They all have the new NIGHTSKY™, STAR-SHIELD optical system, that addresses the Dark Sky and Light Pollution issues.Lighting requirements have become more sophisticated, addressing performance of light, light pollution, cut-off and veiling luminance or glare. Sternberg's new optical systems address all of these issues conforming to the Dark Sky regulations. Other full cut-off fixtures are pending approval. Sternberg Lighting has for over 80 years been a leader in engineering, reflector design and photometric performance.

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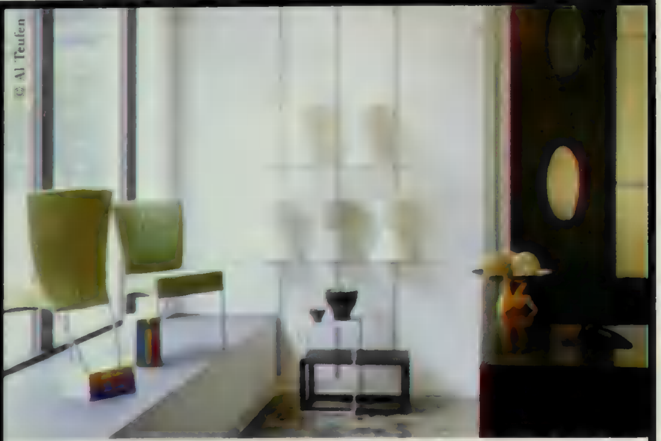

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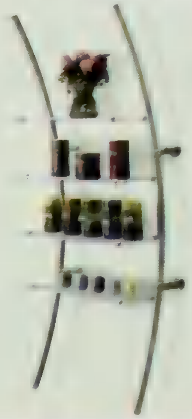

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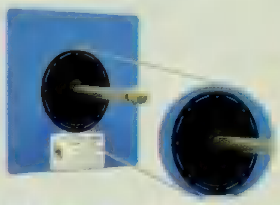

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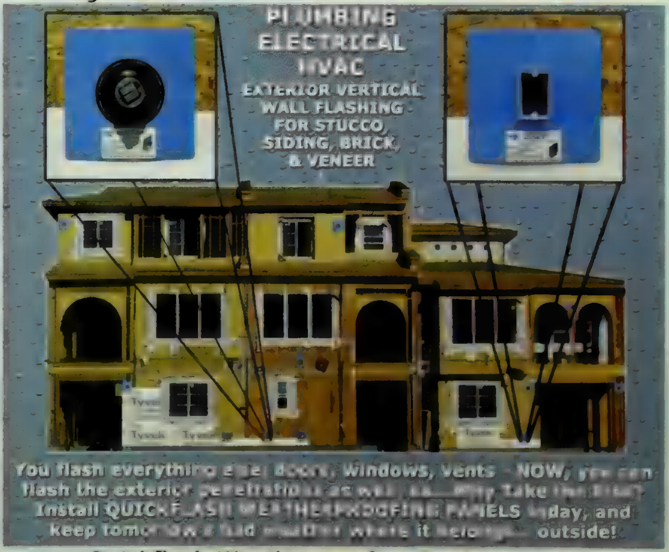

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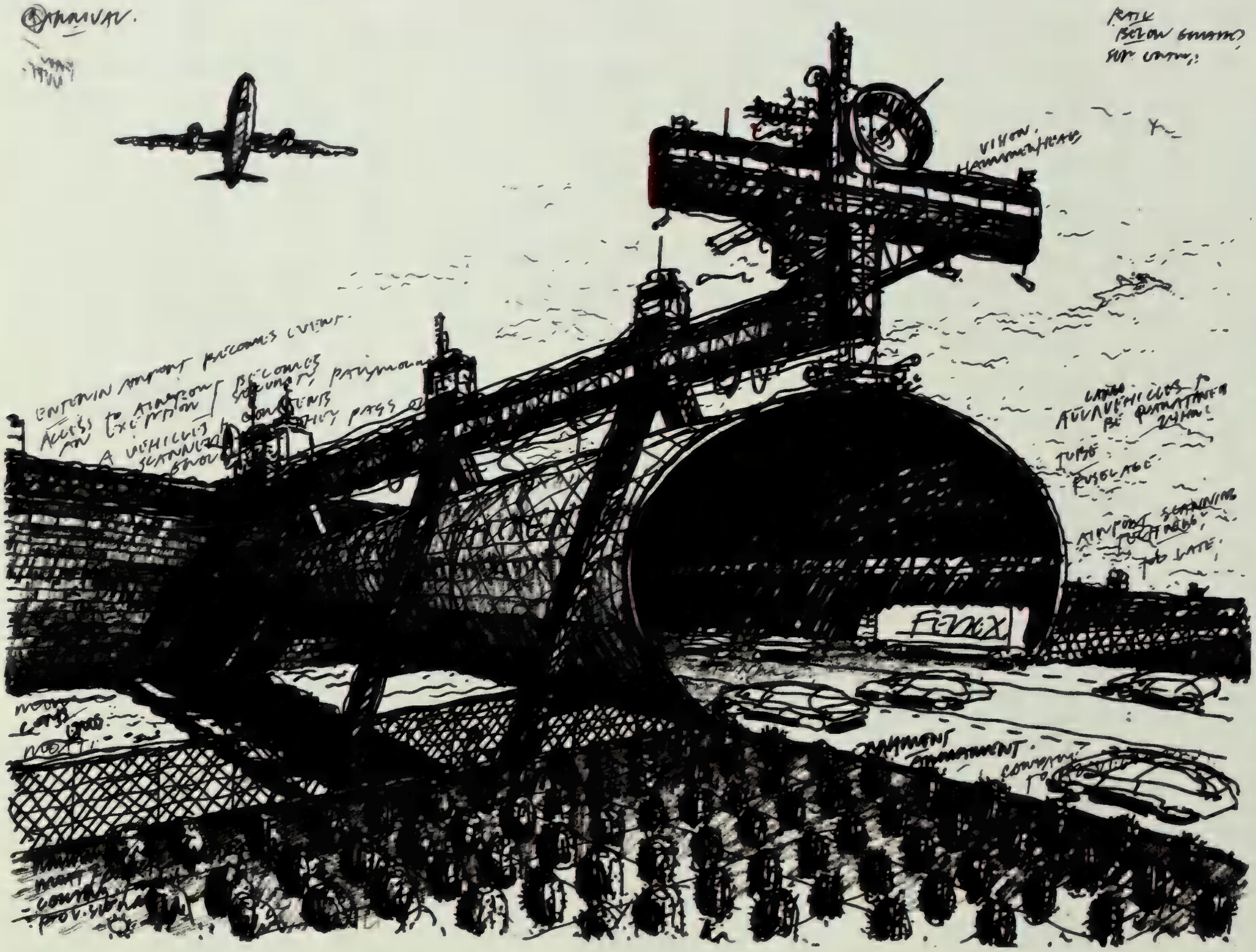
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Wellington Reiter takes to the air

Sky Harbor International Airport in Phoenix, Arizona, served over 41 million passengers in 2006. The airport's importance to the city's economy and culture inspired Wellington Reiter, AIA, an architect and dean of Arizona State University's College of Design, to sketch out a vision of its future. Reiter penned the sketches for an exhibition organized by the university's art museum to explore various urban conditions of one of America's fastest-growing cities. "There's an interesting dichotomy to how people view airports as part fortress and part gateway to a vacation," Reiter says. "We have no coastline, so the airport is literally our edge, our way in and out." The architect conceived the highway pipeline into the airport as both a sort of utopian entry and a darker surveillance system, where each car's contents would be scanned and occupants interrogated. The control room appears straight out of *Dr. Strangelove*. He likens airport design to the "view corridors" invented by French architects in the 17th and 18th centuries as means for control and observation. Although Reiter says he hasn't sketched much in the past 10 years, "These big pieces of infrastructure, like the airport, open up opportunities for exploitation in an interesting way." *Russell Fortmeyer*

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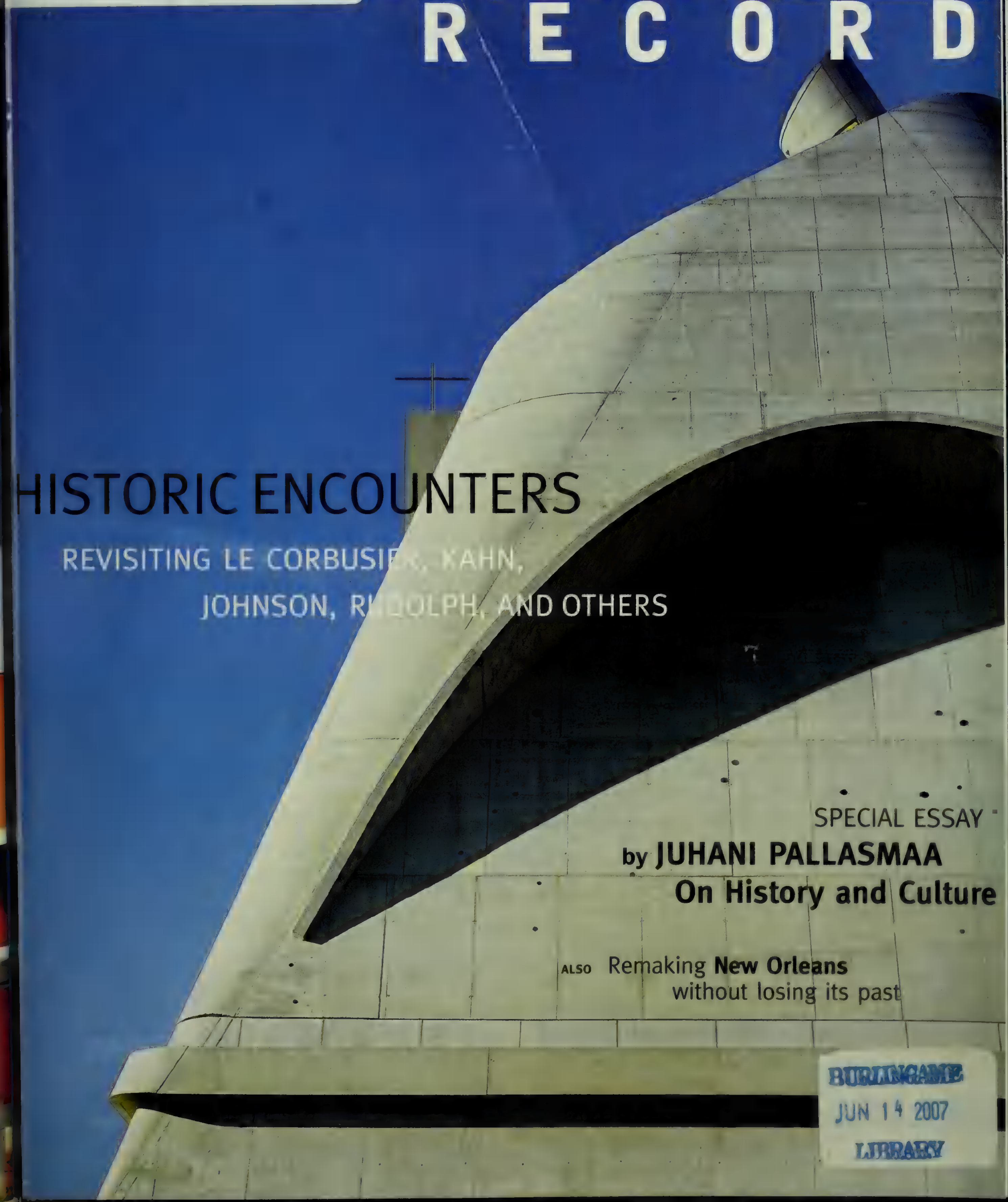

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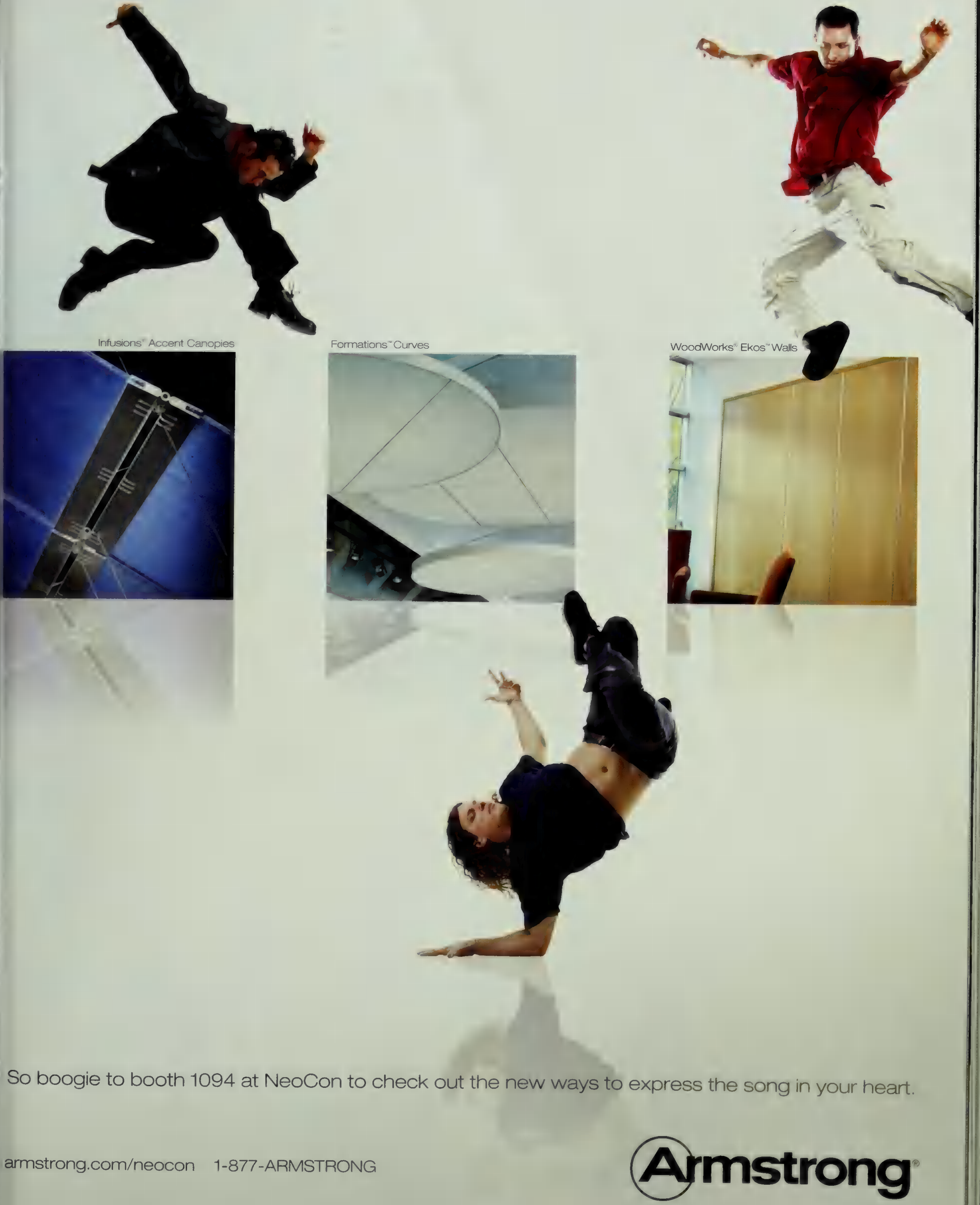

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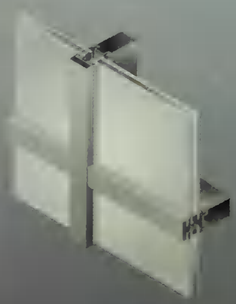

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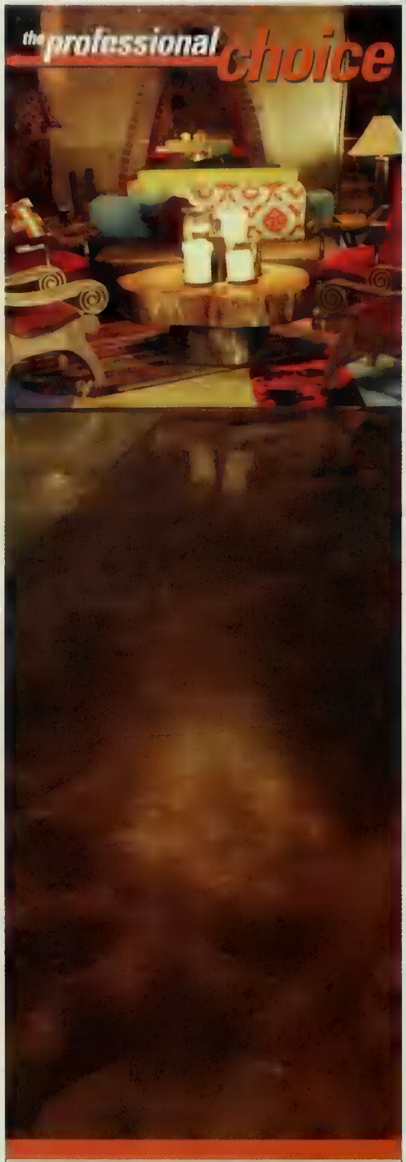

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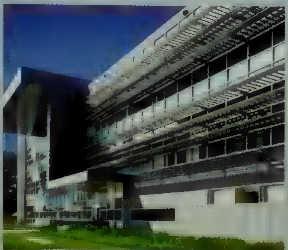

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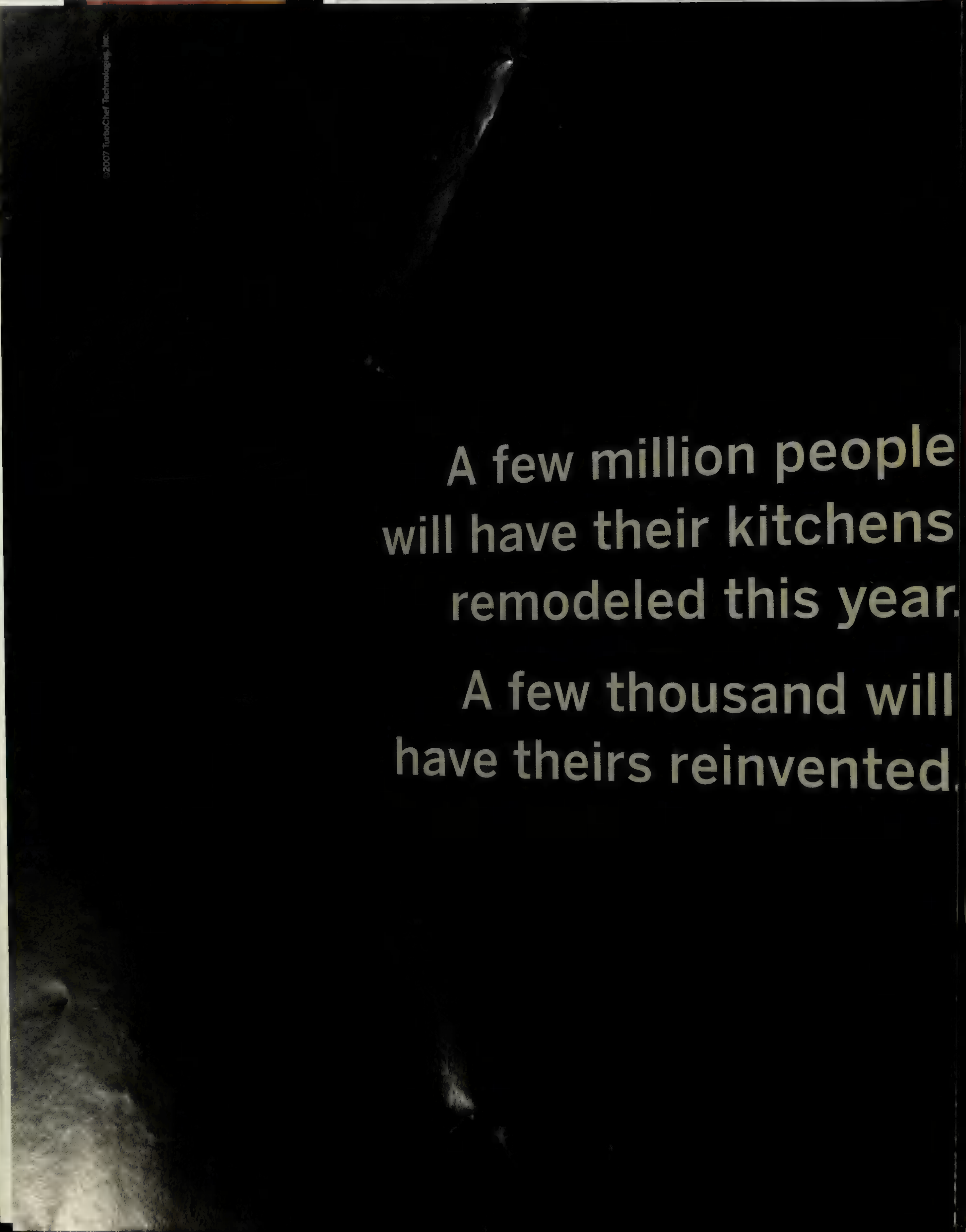

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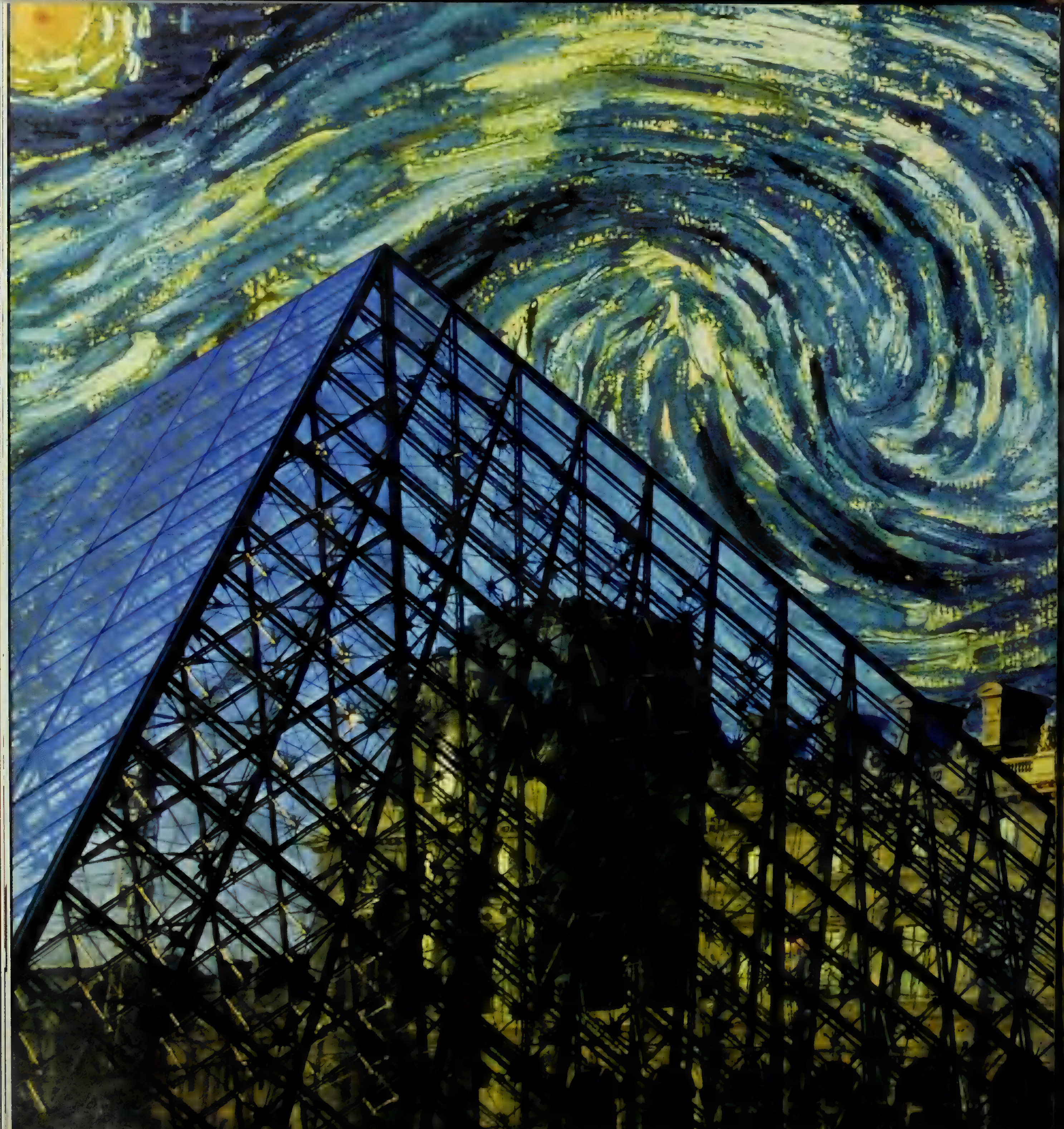

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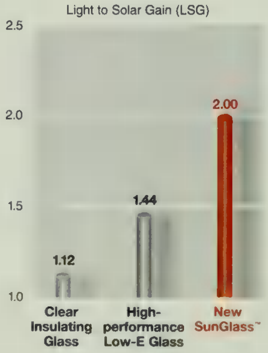

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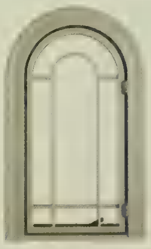

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On the Cover: *Eglise Saint-Pierre de Firminy-Vert, by Le Corbusier and José Oubrerie. Photograph by Roland Halbe.*
Right: *The Roundhouse, by John McAslan. Photograph by Hufton + Crow/View.*

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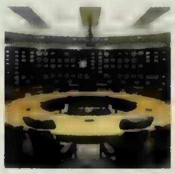

Web exclusive: Restoration is not just a technique, it takes research, thought, judgment, and design sensibility, as the **12 projects** we present here in images, plans, and text demonstrate. Plus, rate and comment on these projects online.

special interiors section

Combining a respect for history and the desire to create authentically modern intervention also yields new forms and propels innovation. As these three modern interiors prove, **talented designers** are creating **treasure-like spaces** inside historic interiors. Comment on these interiorps online.

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blogs and forums

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From top: A private home, Canyon Lake, California, by Silva Studios Architecture; image courtesy of Silva Studios Architecture. Synygy World Headquarters, Chester, Pennsylvania, by Hillier Architects; image courtesy of Hillier Architects. Fleet Library at the Rhode Island School of Design, Providence, Rhode Island, by Office dA; photograph © John Horner. Eglise Saint-Pierre de Firminy-Vert, Firminy, France, by Le Corbusier and José Oubrerie; photograph © Roland Halbe. Bottom, left to right: Galland House, Laval, Quebec, Canada, by Boutros + Pratte; photograph © Robert Etcheverry. Lincoln Square Canopy, New York City, by Caliper Studio; photograph courtesy of Caliper Studio. Virginia State Capitol, Richmond, by Thomas Jefferson, renovation by Hillier Architecture; photograph © Tom Crane.

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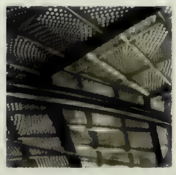

archrecord2

Archrecord2 catches up with De Leon + Primmer, a firm adding to the evolving built environment of Louisville, Kentucky. We also reveal a winning competition for a listening room constructed of cardboard. Online, meet other talented young designers in Design, Work, and Live, and join the conversation in Talk.

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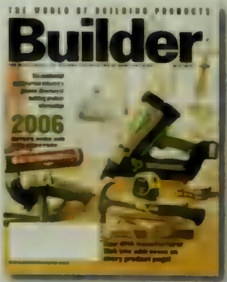

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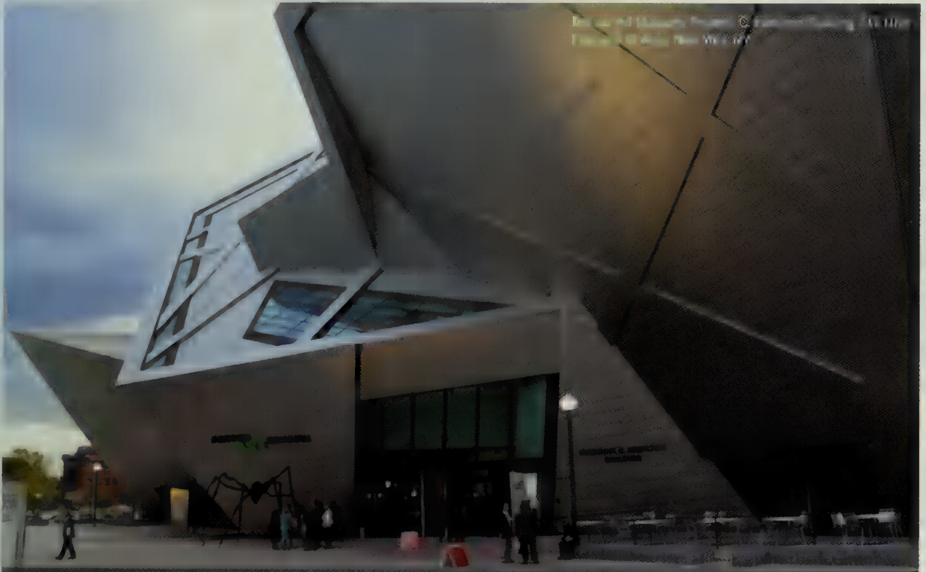
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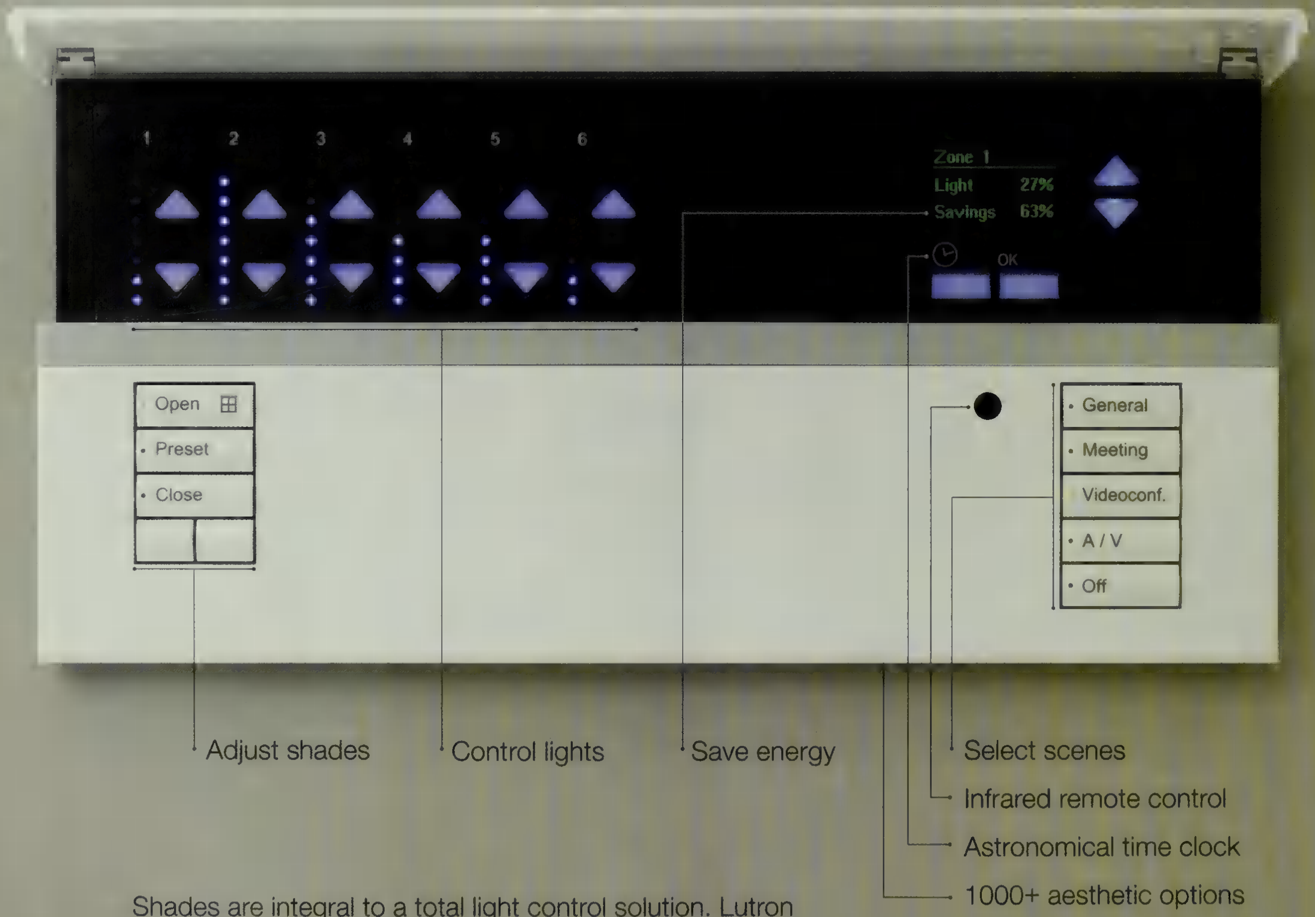

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Editorial

By Robert Ivy, FAIA

"History is the present. That's why every generation writes it anew."
E.L. Doctorow

According to E.L. Doctorow, architectural history becomes what we make of it: Interpretation and perspective shape our view. Today, the history of architecture, that most seemingly benign of subjects, has burst out of the classroom, far beyond Banister Fletcher, to generate energetic, lively debate among a generation revisiting accepted ideas and reexamining structures that rarely retain their original purpose. Contemporary concerns fashion new value systems for older buildings, sometimes resulting in an unforeseen sense of chic, such as when adaptation and preservation reinforce sustainability: What could be greener than reuse?

History can pose conundrums. In this issue, we examine one project conceived, designed, and begun in the 1960s, a project declared historic by authorities, yet only fully articulated and completed decades later. Le Corbusier's St. Pierre church at Firminy, France, represents the intertwining of twin consciences—that of the original architect and of his collaborator, José Oubrerie. The long gestation period and joint authorship invite us to parse the clues in the resulting artifact: In what ways do we value the original architect's contributions and those of his adherent and successor? The question has bedeviled work by other masters whose design intent outlived them, including work completed by the Taliesin Fellowship years after Frank Lloyd Wright's death.

We are revisiting and rethinking existing projects en masse. The facts bear out the assertion that roughly half of all construction work involves some type of renovation, and the percentage is rising, bringing increasing scrutiny to older buildings. Industrial facilities and works of infrastructure have proved to be remarkably adaptable for the 21st century, as the conversion of industrial spaces into lofts, a movement that has spread around the world, attests. In London, the architect John McAslan reinvigorated an important early rail turnaround structure (1846), an iconic roundhouse, into something totally unforeseen at the time of its conception or its subsequent life as a gin warehouse—a stellar theater-in-the-round, which came complete with its own subterranean work areas. Adaptive reuse, if rarely this imaginative, has become commonplace, hardly raising eyebrows.

Intriguing variants on the renovation theme include new interventions within strong older exterior structures, such as the Haus im Haus in Hamburg, Germany, slipped into the revered Handelskammer (1841), or Chamber of Commerce. In interior insertions, while employing the exterior shell as protective enclosure, the transformative additions allow expression of new personality and sensibility while simultaneously upgrading vital systems for thermal comfort or communications. And, voilà, the master structure remains blessedly intact, cradling its fresh cocoon.

Additions can alter the function of the most familiar historic buildings, such as Richard Gluckman's galleries for the Museum of Contemporary Art San Diego added to the former San Diego depot (Atchison, Topeka, and Santa Fe, 1915). Its colorful tumble of boxcarlike forms appended to the original building sends a signal: This older Spanish Mission–style building settled at the city's axial center deserves keeping and demands our attention as a new entity. What had once served as a magnet still draws crowds, but for art, not transport.

Restoration and preservation continue to evolve. Although most often associated in this country with the scholarly protection of late-18th- and 19th-century architecture, the time has arrived to preserve the masterworks of Modernism. Unfortunately, many great projects lie outside secure landmark statutes and are too frequently torn down at will. Witness the teardown of a classic 1972 Paul Rudolph house in Westport, Connecticut, in January 2007—an unconscionable act fueled by high real estate values combined with no statutory safeguards.

Two special residences from the period seem to have escaped safely. The private restoration of Rudolph's own apartment, high above Beekman Place in New York City (begun in 1978), and of Philip Johnson's Glass House (1949) in New Canaan, Connecticut—perhaps the most well-known private residence of the second half of the 20th century in North America and now ceded to the National Trust for Historic Preservation—can instruct another generation on the spatial art and materiality that fascinated late Modernists—qualities we continue to explore today.

What you will not find in this issue is history as stylistic road map or copybook. In our own time, replete—some might say adrift—with stylistic invention and exploration, a revisionist countercurrent is latching onto Neoclassical principles as an anchor. For Neoclassicists, history provides a guide or copybook, but that highly charged question remains for another issue, another month. History, and ARCHITECTURAL RECORD, *march on.*

Robert Ivy

Letters

Too little, too late

I read with great dismay Fred Bernstein's article on Edward Larrabee Barnes, FAIA [May 2007, page 167], the recipient of the 2007 AIA Gold Medal. One would have hoped that ARCHITECTURAL RECORD would have taken this as an opportunity to highlight for a new generation the extraordinary work of a great 20th-century architect; instead, Mr. Bernstein seemed to feel this was an occasion to air his tepid interest in Mr. Barnes's work (I would add, matched by the equally tepid graphic design effort of the cover).

Mr. Barnes's work has an elegant and timeless quality. Projects brilliantly integrated into their sites are quietly suffused with natural light, materials, and form fused together with graceful economy. He had a love of the profession, and throughout a long and distinguished career always found ways to educate, inspire, and support young designers. These are the qualities that were recognized by the Gold Medal committee. ARCHITECTURAL RECORD owes an apology to the New York City, Kansas City, and Chicago AIA chapters, which, for the first time in the history of the Gold Medal, joined together to put a name into nomination, and to the 136 individuals who signed a letter of support.

ARCHITECTURAL RECORD's grudging recognition of Mr. Barnes's work is part of an ongoing puzzle; the real story is why the AIA did not honor this seminal architect with the Gold Medal during his lifetime.
—Anne Wattenberg, AIA
Denver

If you have ever spent any time at Ed Barnes's Haystack Mountain School of Crafts you would have had the pleasure of experiencing a [illegible] perfect combination of site and building: Each is made better by the other. In my view, Barnes was at his best at this scale and in this region. You can see in the faces and behavior of the students and faculty the contentment that architecture of this selfless quality can bring.

By the way, in the photograph taken at Marcel Breuer's house in New Canaan, Connecticut [page 166], I think the unidentified man is Wilhelm Von Moltke. The timing of the picture is about right, because I met Willo at the Saarinen office, in Bloomfield Hills, Michigan, in 1949, when I started working there while still a student at Cranbrook.
—Niels Diffrient
Ridgefield, Conn.

Shame on the AIA and shame on ARCHITECTURAL RECORD for waiting until after his death to give Edward Larrabee Barnes paltry recognition of his humanity and enormous contribution to American architecture. It was way too little, way too late. The AIA, in its typical fashion, attempts to use others' talents to polish its own public image by association, rather than recognize greatness in its own time. RECORD, in similar manner, allots a measly few pages to an architect who contributed more to American architecture than all the pre-, post-, and past Modernists since Gropius and Mies. You should have devoted the entire issue to this great and humble man.

I had the honor and pleasure to work with Ed. He was the kindest, gentlest, most focused, and creative architect I'll ever meet. In many instances, I watched him quietly assert his profound concepts amid administration pressures to "be less overbearing." Your last paragraph sums up Ed's greatness. His architecture's biggest strength is "self restraint," a quality that most architects, American or otherwise, would do well to learn and practice.
—Marshall Moretta
Evanston, Ill.

Playing politics

I am enjoying the May issue and am pleased to see your reminder that "architecture remains a social art." It also, alas, requires some political art, at times—as, case in point, your coverage of the no-longer Renzo Piano 1,000-foot tower in the middle of Boston's delicate downtown and the Rudolph building that may be demolished to make way for it [May 2007, Record News, page 52]. Additionally, are you aware that Boston's City Hall is now seriously threatened? The mayor plans to put it up for sale (demolition assumed) along with City Hall Plaza and build a new city hall at the edge of the seaport (inaccessible by public transit). It's hard to know where to begin, but we are trying again to get Landmark protection. A petition to study the building for designation has been accepted by Landmarks, but the mayor can veto designation even if the commission votes for it. The only thing that can stop this is national attention at a scale that convinces him this would be an embarrassment.
—Joan Goody
Boston

Modern man

I have always been curious as to why traditional (pre-Modernist) architecture never receives awards. True, there is recognition of the occasional retrofit or renovation of a classic building. But on the whole, it seems ludicrous to ignore those eccentrics who still cling to a style out of favor with typical contemporary architecture. I consider myself a Modernist but wish architects would realize that the public as a whole prefers more traditional buildings.

I was especially distressed to see so much ink given to the Portico Scots Church Redevelopment project [May 2007, page 230]. Why would an architect be so disrespectful of a traditional group of buildings and why would ARCHITECTURAL RECORD validate the architect's vandalism and mediocre modern design by publishing such tripe?

P.S. I was pleased to see the AIA finally recognize Edward Larrabee Barnes, FAIA, with the Gold Medal. Would that it could have come during his lifetime and given proper recognition to this great architect.
—Loy Ray Clemons
Via e-mail

Corrections

In April, an article about the 2010 World Expo [page 36] misstated the size of the 1.5-million-square-foot Expo Center. A May news story about the Latrobe Prize [page 50] omitted that the American Institute of Architects' College of Fellows is the body that awards this honor. A May feature, "Integrated practice in perspective" [page 116], mischaracterized Gensler as a 1,700-person firm. In fact, Gensler employs over 2,600 people in 30 different offices. A photograph of the Sabine-to-Bagby Promenade in May's Lighting section [page 286] was incorrectly attributed to Elaine Mesker-Garcia; the photographer is Geoffrey Lyon. A story on Roger Ferris + Partners's headquarters in the March Interiors section [page 179] misprinted the office's square footage. It is 22,000 square feet, not 2,200.

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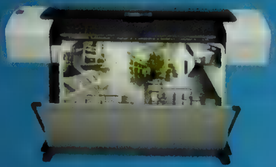

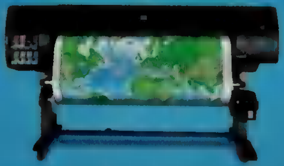

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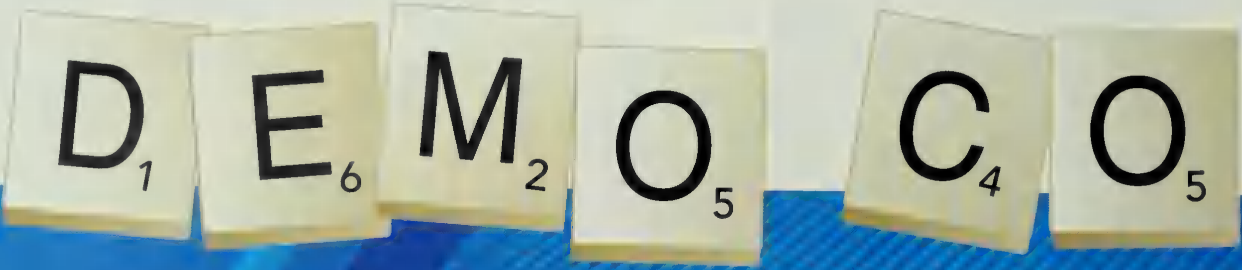

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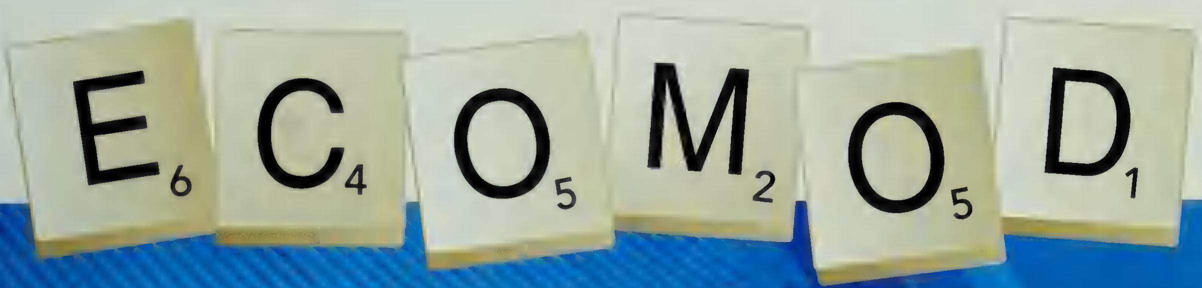
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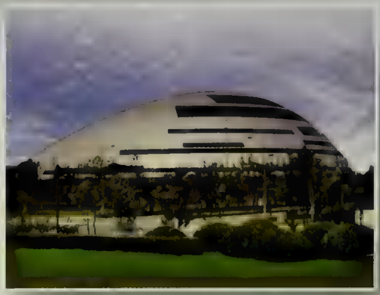

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Record News

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As threats to Rudolph's legacy mount, foundation hires a fresh face

Nepal Asatthawasi (left) stands amid the rubble of Paul Rudolph's Michaels House (above). The Cerrito residence (top) is next on the list of properties facing demolition.

It wasn't a good year for the Paul Rudolph Foundation. In 2004, Ernst Wagner, who established the foundation, took a nasty fall in the Manhattan town house that Rudolph designed for himself and Wagner in 1989. His injury followed the departure of the foundation's director, who left due to a budget shortfall.

Wagner and the foundation recovered, but today the organization faces a new crisis as Rudolph's buildings are endangered by a storm of real estate pressure and Rudolph's association with the misunderstood and underappreciated Brutalist movement. The list of threatened or demolished structures includes a 1972 house commissioned by Dr. and Mrs. Louis Michaels in Westport, Connecticut, that came down in January. The current owners of Rudolph's Cerrito residence in Westerly, Rhode Island, are making plans to tear down that property.

Sarasota, Florida, where Rudolph was a leader of the city's namesake school of Modernist architecture, is the most active battleground for his legacy. The grassroots group Save Riverview, working with the National Trust for Historic Preservation, recently won a stay of execution for Riverview High School, which the county wanted to demolish; they have until March 2008 to raise $20 million for an alternative scheme to move forward. Also in Sarasota, Joe King, AIA, a published Rudolph expert, recently applied to demolish the Twitchell House after deciding it financially imprudent to restore the 1941-vintage residence. In addition to needing repairs after a fire and flooding, the structure sits just 25 feet from the Gulf of Mexico, making it a candidate for repeat damage. At press time, King had tentatively worked out a deal to rebuild the house elsewhere.

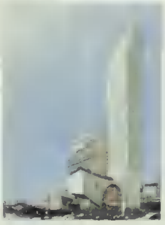
The Paul Rudolph Foundation is following new plans to fight these threats, thanks to Nepal Asatthawasi, who was named coordinator of the organization last October. The 26-year-old understands that some observers will do a double-take at her age, but she wants to use her generation's savvy to build excitement about Rudolph's work. "I'm perhaps more open to technological intervention," she says, and discusses transforming the foundation's Web site into a dynamic networking site that offers "news of teardowns and rumors of a teardown, not just of Rudolph buildings but his whole generation's."

Asatthawasi's expanded vision for the foundation includes educational efforts founded on wiki culture as well as elbow grease. She is currently documenting Rudolph's houses and will make this archive available online; a film is also in the works. To help boost the foundation's meager revenue, Asatthawasi is inviting more members to join its board—and telling candidates that fund-raising will be a responsibility of membership. Although it won't increase revenue, she also plans to get Rudolph homeowners "involved in an exclusive network. And hopefully they'll appreciate it enough to pass on those values, and perhaps not be so quick to pass on the property to a less sensitive buyer." She is introducing sellers to interested buyers, or encouraging them to use auction houses instead of local property brokers.

Asatthawasi admits that the foundation is unable to purchase properties outright, but she compares her job to leading a high-tech startup company and suggests that the foundation's online endeavors could help reignite the field of preservation. "I haven't seen any kind of widespread effort to do something vital in this realm," she notes. *David Sokol*

ON THE BOARDS

Studio Daniel Libeskind has created an icon to perch atop an icon: a 50-story residential tower rising astride the Hummingbird Centre theater complex in Toronto. Completed in 1960, the Hummingbird was designed by Peter Dickinson. Libeskind's tower will start construction in 2008. *Alex Bozikovic*



Herzog & de Meuron are draping a diaphanous glass structure over the roof of a brick-clad warehouse in Hamburg to create 1.3 million square feet of space for a 2,150-seat performance hall, museum, and other facilities for the NDR Symphony Orchestra. Already under way, Elbe Philharmonic Hall opens in 2010. *James Murdock*

Beyer Blinder Belle is giving visitors a reason to linger at the ground floor of the Empire State Building in New York City. The firm is overseeing the restoration of long-obscured Art Deco murals on the lobby's ceiling. Work begins next month. *C.J. Hughes*

For full coverage on these projects: architecturalrecord.com/news/.

Aging Moderns still prove controversial

Paul Rudolph's 1960 Blue Cross/Blue Shield Building in Boston broke aesthetic and technical ground while respecting the scale of a historic streetscape. But the developer of a proposed new skyscraper has sketched it out of the picture, and the building's fate is now uncertain. In Cleveland, meanwhile, county commissioners approved plans this spring to demolish Marcel Breuer's 1971 Cleveland Trust Tower.

Although these buildings have their admirers, they challenge entrenched notions of historic preservation and highlight an ongoing debate about saving Modern buildings. They also serve as reminders of lingering hostility toward much postwar architecture. "It's difficult for people to understand that a building built in their lifetime is historic," says Christine Madrid French, president of the Recent Past Preservation Network. And Modernist architecture starts with a couple of strikes against it, given its anti-historicism, use of industrial processes, and rigid geometries. It's also frequently associated with controversial and often disruptive urban-renewal schemes. "A lot of these buildings were built on ashes of other buildings," observes Jeanne Lambin, a National Trust for Historic Preservation field services coordinator in Wisconsin. "Some people will never be interested in the preservation of Modern architecture."

But when buildings reach 50 years old, they become eligible for the National Register of Historic Places, qualifying for tax credits as well as other incentives and protections. An estimated 70 percent of buildings in the U.S. were constructed following World War II. Many are poised to hit the magic age. And many younger buildings are also considered worthy of protection. This leads some preservationists to argue for new selection criteria: lowering the age limit, for instance, or allowing exceptions.

This sentiment, though, is not universally shared. "There's a danger that if we start saying so much of this is history, we will invite skepticism," says Donovan Rypkema, principal of the consulting firm Place Economics. A better argument for preservation can be made with the principles of sustainability, he says. Destroying an existing building and constructing a new one expends far more energy than renovation. The sustainability rationale argues for placing less emphasis on maintaining the architectural design and details. But federal standards established by the Secretary of the Interior, which determine eligibility for tax credits, emphasize saving original materials, retaining significant changes made over time, and distinguishing interventions from an existing structure. Postwar buildings often present a challenge.

"So much of what so many Modern buildings do is get an idea across about material, form, and social conditions," says David Fixler, head of Docomomo New England. "It has less to do in most cases with the importance of materials." He adds that restoring or duplicating original materials can be problematic since many buildings contained short-lived, experimental technologies.

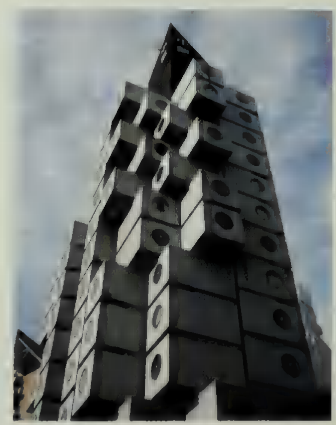
Fittingly, the experimental energy that sparked Modernism can be applied to the handling of these buildings now. "It's an architecture that broke with tradition," says Theo Prudon, head of Docomomo U.S. "Why shouldn't its preservation break with tradition?" *Ted Smalley Bowen*

Kurokawa's Capsule Tower to be razed

Kisho Kurokawa can't seem to catch a break. Just days after the Japanese architect lost his bid for the governorship of Tokyo in early April, the Nakagin Capsule Tower, his best known building and one of the few built examples of the Metabolist movement, was given a date with the wrecking ball.

Completed in 1972, the Capsule Tower stands in Tokyo's affluent Ginza district. It is actually composed of two concrete towers, respectively 11 and 13 stories, each encrusted with an outer layer of prefabricated living units. It has long been appreciated by architects as a pure expression of the 1960s Metabolist movement, which envisioned cities formed of modular components. But in recent years, the towers' residents expressed concern over the presence of asbestos. On April 15, the building's management association approved plans calling for the architectural icon to be razed and replaced with a new 14-story tower. A demolition is yet to be determined.

Kurokawa has pleaded to let the Capsule Tower express one of its original design qualities: flexibility. He suggested "unplugging" each box and replacing it with an updated unit, letting the base towers remain untouched. Japan's four major architectural organizations, including the Japan Institute of Architects, support this scheme. But the building's management were unconvinced and raised concerns regarding the towers' ability to withstand earthquakes, as well as its inefficient use of valuable land. The new building will increase floor area by 60 percent.



Following the board's decision, only Kurokawa continues to raise a protest. If the Capsule Tower is destroyed, it will join a growing list of losses. His Sony Tower in Osaka, completed in 1976, came down last year; Plantec Architects designed a glass-walled commercial building that will replace it. *Yuki Solomon*

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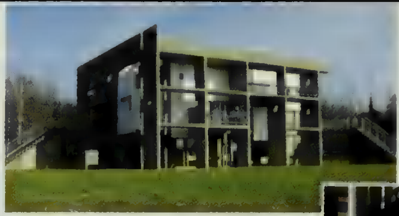
Parameter is converting the largest and tallest industrial building on Baltimore's waterfront into more than 200 condominiums. Silo Point repurposes a 290-foot-tall grain elevator, built in 1928, and several 130-foot-tall silos. It opens in 2008. *J.M.*

Killis Almond & Associates is restoring the Alameda Theater—an Art Deco movie palace and performance hall that is to Latinos in San Antonio what the Apollo is to African-Americans in New York. The 1949 building, which reopens in 2009, is part of the new Alameda National Center for Latino Arts and Culture, an affiliate of the Smithsonian. *Elizabeth Lunday*

Gensler restored the terra cotta-and-brick facade of a 1924 building and, behind, it created the Center on Halsted, Chicago's first gay community center. The 175,000-square-foot complex also includes a supermarket. It opens this month—Pride Month. *D.S.*

For full coverage on these projects: architecturalrecord.com/news/.

Oubrerie's Miller house vandalized



José Oubrerie (second from left in photo below) inspects damage inside his iconic Miller house (left).

The fate of the Miller House, in Lexington, Kentucky, is in doubt after vandals have attacked it. Designed by Le Corbusier protégé José Oubrerie, it has been described as one of the finest residences of the 20th century. Intruders entered the now-vacant property several times this spring and painted graffiti, broke windows, and knocked in much of the plaster. Repairing the damage, Oubrerie estimates, could cost $300,000.

The Miller House was finished in 1991 for Robert Miller and his wife, Penny. After her husband passed away in 2002, Penny Miller sold the house in early 2006, as well as 20 acres of land, to Schneider Designs, a local, family-owned residential developer. Oubrerie and enthusiasts of the house fear that the firm will be unwilling to pay for repairs and will eventually demolish it. Calls to Schneider were not returned.

The facades of the Miller House are composed of a thin, cast-in-place concrete screen that wraps around several painted-wood inner structures: One surface is a simple grid of interlocking slabs; another has small vertical and horizontal slits. Inside, the house features an irregular composition of three two-floor living spaces—each with its own bedroom, bath, office, and independent entrance. Built-in cabinetry echoes the facades' interlocking forms.

"I was bored by normal house planning," Oubrerie says of his design. "I was interested in exploring my past, and in exploring the city as a house, and the house as a city." The French architect worked in Corbu's office from 1957 to 1965 and was the chief designer of Saint Pierre in Firminy, France (page 108). Now a professor at Ohio State University, Oubrerie was dean of the University of Kentucky School of Architecture when he designed the Miller House.

Oubrerie says that the Schneiders failed to activate the property's security system and have declined offers to pay for its reactivation. "It's not so much the vandalism, it's that they let the vandalism happen," he observes. "I think they want the house to be in as poor shape as possible so they can get rid of it."

Michael Jacobs, a friend of Oubrerie's and an adjunct professor at Kentucky's School of Architecture, is investigating ways to protect the house, including listing it on the National Register. Additionally, he received a pledge of support from the American Institute of Architects during a meeting with its president, RK Stewart, FAIA, in May.

But landmarking a structure takes time, Oubrerie observes, and the house needs protection now. He is trying to raise money to buy the house from the Schneiders. In the meantime, Jacobs has enlisted the help of his students to cover the building's broken windows with plastic and plywood. *Sam Lubell*

LACMA to collect houses—or maybe not

Michael Govan, director of the Los Angeles County Museum of Art (LACMA), created a buzz in museum circles earlier this year when he expressed an interest in acquiring canonical, Midcentury Modernist houses for his institution's collection. As detailed by *The New York Times* on March 15, Govan's plan would preserve L.A.-area houses as in situ satellites of the museum.

Although the idea is hardly new, his remarks generated considerable excitement. But Govan has since retreated from his original statements. He declined to comment for this story. LACMA's president and C.O.O. explained the museum's current position. "Eventually, we would love to collect houses and preserve them," Melody Kanschat says. "But we don't have any plans."

Plans or not, the possibility that LACMA might one day collect notable houses sparked a dialogue about the role of art museums today. Richard Koshalek, president of the Pasadena Art Center College of Design, is no stranger to unorthodox collections. While a curator at L.A.'s Museum of Contemporary Art, he acquired Michael Heizer's *Double Negative* (1969–70), a Nevada earthwork whose trenches are as long as the Empire State Building is tall. "I applaud Michael," Koshalek says. "L.A. has an unbelievable resource in these houses, including Neutra, Wright, Gehry, and Schindler. They deserve this attention." Citing the need to share the responsibility for preservation with other institutions, including the National Trust, he adds that he is convinced that this is a necessary step for museums. "If the museum is to be relevant, it has to extend beyond the range of current responsibilities. It cannot be limited by scale."

Proving this point, Paola Antonelli, curator of design at the Museum of Modern Art, New York, has long expressed interest in acquiring a Boeing 747 for her collection. The plane would operate normally and be made available for public viewing at a local airport—or in flight. MoMA also has a history of maintaining houses, including Richard Neutra's VDL House and the Schindler House, both in L.A. "Museums must think beyond their buildings," Antonelli says. "I'm so happy that LACMA is thinking of doing this." *John Gendall*

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Crouching Olympics, hidden preservation

Beijing's "Nail House," nicknamed for its defiance, has succumbed.

After building designs were revealed for the 2008 Beijing Olympics a few years ago, reports turned to stories of displaced local residents and the destruction of historic architecture as the city began revamping its infrastructure. A photo that recently made the front page of newspapers worldwide best captured the activity: a lone house standing defiantly amid a giant construction pit. Nicknamed the "Nail House," the diminutive dwelling finally succumbed to a backhoe on April 3—its owner, Wu Ping, joining the estimated 300,000 people who have been displaced by construction. But behind these dramatic scenes, a preservation ethic is gradually emerging. Some of the highest profile developments currently under way in Beijing preserve and incorporate old buildings.

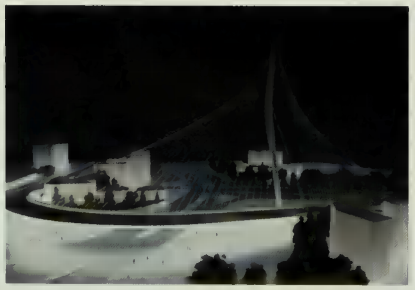
In the Qianmen neighborhood, Beijing Dashalan is converting a series of hutongs—traditional courtyard houses—into a residential and retail corridor. And nearby, Handel Lee, a lawyer who developed two adaptive-reuse projects on the Bund in Shanghai, is transforming the Legation Quarter, a 4-acre estate that once housed foreign diplomats, into an upscale retail and entertainment property. Within five landmarked buildings that display a mix of Chinese and Victorian architecture, Gilles & Boissier is designing a restaurant for chef Daniel Bouloud; and Andy Hall, a British architect based in Shanghai, is working on an outpost of the Bouhjis Club.

Journalist Wang Jun is widely seen as sparking China's nascent preservation movement. His 2003 book *Beijing Record* highlighted the forgotten heritage of Liang Sicheng, an urban planner active in the 1950s. Liang, who incidentally happens to be the uncle of architect Maya Lin, devised a plan for Beijing that was a modern way of preserving the past while integrating the new.

"This book about Liang influenced both the government and the common people more than any other book written by urban planners," observes Jiang Jun, who edits the architecture magazine *Urban China*. "A thinking arose that architectural preservation is not only a moral-consciousness problem, but a problem linked to rational urban planning."

Jiang adds that the government is slowly realizing that rather than treating Beijing like a tabula rasa, there is value to saving historic buildings and open space. Also, due to recent efforts to flush out government corruption, it is more cautious about greenlighting every new development. Beijing's preservation policy is by no means set, Jiang notes, and it remains to be seen what will happen after 2008. "It's still going to be a turning point of the preservation. It will be much more difficult to make a change to the policy after the Olympic Games, when growth is slowing down." *Andrew Yang*

Politics, history bedevil Jerusalem projects


Work on Santiago Calatrava's Jerusalem Chords Bridge began in January. Its 387-foot mast will be the city's tallest structure.

Jerusalem, a millennia-old city sacred to Judaism, Christianity, and Islam, is also a growing metropolis and the capital of a modern country. But its population of 720,000, two-thirds Jewish and one-third Palestinian, is deeply divided religiously and politically. Development must accommodate these groups' conflicting needs—and ubiquitous archaeological remains.

Even a seemingly simple project, such as replacing a temporary pedestrian bridge leading to the sacred Temple Mount, can provoke the threat of Armageddon. In February, just as construction was to begin, archaeological excavations rekindled old rumors that Israelis were endangering the al-Aqsa mosque nearby. Riots forced Mayor Uri Lupoliansky to freeze the project. Although other ancient cities must grapple with archaeological remains, Jerusalem with its development problems is unique—and requires solutions that go beyond architecture.

Typical design issues such as height and material choice often take a back seat to religious and political considerations, says David Kroyanker, a Jerusalem-based architectural historian. He cites the Frank Gehry–designed Museum of Tolerance, part of which is to be built on Muslim graves. Planning began in 2000, but the project is now mired in a lawsuit brought by two Muslim groups. A judge recently ordered an architectural solution. The one that was offered—that part of the museum be cantilevered so that it's "over, not on" the graves—was deemed "ludicrous" by Muslim objectors. A final ruling could come as early as this summer.

A lack of respect for different cultures' values often lies at the heart of Jerusalem's problems. Local architect David Guggenheim observes that the degree to which opposing groups will compromise often depends on the prospects for peace in the region. Currently, these prospects are receding.

Guggenheim echoes many residents who want a greater voice in planning decisions. He adds that completing the long-delayed detailed zoning plans for burgeoning Palestinian neighborhoods—without which the city refuses to issue building permits—could break the vicious cycle of illegal housing construction and demolition.

But instead of finishing these plans, elected officials pursue projects by high-profile architects that they claim will attract tourists and boost the economy in Jerusalem, the poorest of Israel's cities. Among them are Gehry's museum and a bridge designed by Santiago Calatrava, currently going up as part of a new light-rail system. Many observers believe politicians' priorities are misguided.

"Jerusalem is not Bilbao and it doesn't need additional tourist attractions," contends Anda Barr, newly elected chairman of the Israel Association of United Architects. "The right way to get good architecture is through international competitions for public buildings, rather than by importing big names."

There are some glimmers of hope. Mayor Lupoliansky promised that the plans for a new Temple Mount bridge will be subject to public review, and the city is upgrading public housing. For now, though, if anything is certain, it's that Jerusalem won't be built in a day. *Esther Hecht*

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PlaNYC v. The London Plan: Which is Greener?

When New York City hosted a 40-city conference on strategies for surviving climate change in May, it was perhaps fitting that the opening reception took place at the Hearst Tower, a green building designed by London-based Foster & Partners. One month earlier, Mayor Michael Bloomberg released PlaNYC, a 127-point scheme to cut the city's greenhouse-gas emissions while overhauling standards for buildings, traffic, and public space. Attracting the most attention was his proposal to create a toll for drivers who enter the city's core—mimicking London's congestion charge, established in 2003. As it happens, London is New York's chief rival for cultural and financial primacy. It laid out its own scheme for combating global warming in 2004. Although the two plans share many similarities, New York's could prove more far-reaching.

Other large cities tackling climate change concentrate on particular sectors: Chicago, for instance, encourages green roofs. London and New York are more comprehensive. Both focus on promoting development near mass transit and making buildings more energy-efficient. But New York asks architects and developers to make the most of existing spaces, while London encourages innovation on underdeveloped land.

Labeled a "spatial development strategy," The London Plan laid the framework for constructing sustainable projects in underused areas such as the Lower Lėa Valley, three miles east of the city's center. As plan manager Debbie McMullen told a Manhattan audience in March, the possibility of developing that site drove Mayor Ken Livingstone's successful bid to host the 2012 Olympic Games. PlaNYC, by contrast, envisions new housing built on decks over railyards and highways, and expediting brownfields remediation. It also calls for creating a public plaza or park within each of 50 community districts and relies on landscaping in parking lots and green roofs to capture storm water and spare overtaxed sewers. Most ambitiously, it seeks to use funds equal to 10 percent of the city's energy expenses to retrofit municipal buildings with technologies that reduce carbon emissions by 30 percent—and it asks landlords of private buildings larger than 100,000 square feet to do the same.

London will likely pursue similarly audacious ideas on its own relatively blank canvas. Its strategy looks 15 years into the future, with goals that respond to European guidelines mandating the construction of more affordable housing. PlaNYC, meanwhile, sets 2030 as its deadline. Before then, it must pass several hurdles. Bloomberg will seek funds from the newly announced Clinton Climate Initiative, but he needs state authorization for other initiatives. Also, landlord groups such as the Real Estate Board of New York want more time to implement improvements. *Alec Appelbaum*

"Sky Gateway" could be closed to high rises

Preservationists in Great Britain are backing stronger planning powers that would affect the look—and height—of London's future buildings. In March, the government released its White Paper on Heritage, which called for creating development buffer zones around 27 World Heritage sites, including the Tower of London and the Houses of Parliament. It followed closely on the heels of calls from UNESCO to prevent skyscraper construction near heritage sites that are at risk from rising sea levels and other effects of climate change.

English Heritage's interpretation of Rafael Viñoly's looming Walkie-Talkie.

Among the towers that could be affected by an exclusion zone is Rafael Viñoly's so-called "Walkie-Talkie," a 630-foot-tall skyscraper that Land Securities seeks to develop near the Tower of London. English Heritage contends that the [illegible] building—which it describes [illegible]ressive and overwhelming form"—will spoil what it calls the city's best patch of skyline, a "Sky Gateway" that stretches 3.5 miles east from the Tower of London to Canary Wharf. Though the Walkie-Talkie was granted planning approval in September, soon after it became subject to an inquiry assessing what the government terms "the appropriateness of a very, very tall building."

Ken Livingstone, London's mayor, has no objections to the tower's height. But the White Paper proposals, which could become law this year, create a dilemma for him. Livingstone promotes skyscraper construction as a tool for encouraging urban revitalization. Indeed, other legislation currently making its way through Parliament would expand his power to intervene and promote buildings that he personally favors.

One such project could be a $3 billion redevelopment of the Victoria Station transit hub. Land Securities tapped KPF to design two 50-story towers as part of a cluster of new buildings there. The Westminster City Council expressed concern that they will obstruct views of the Houses of Parliament. Although Livingstone asked the developer to consider reducing the towers' height, he remains committed to the project.

Land Securities submitted designs for Victoria Station, without height reductions, for planning permission this spring. The fate of Viñoly's Walkie-Talkie, meanwhile, is expected to be decided in July. It remains to be seen how proposals to expand the buffer zone around heritage sites will impact either scheme. *Lucy Bullivant*

Chicago Spire approved

The Chicago Planning Commission unanimously approved Santiago Calatrava's Chicago Spire in April. Designed for a 2.2-acre lakefront site—although its footprint will occupy barely half that area—the seven-sided glass tower tapers and twists to point 2,000 feet above a public plaza, making it the tallest building in North America. The 3-million-square-foot structure will contain 1,200 condominiums and aims for LEED Gold certification.

Calatrava has likened his slender spire to a wisp of smoke and a snail shell. Each of its 150 floors rotates two degrees from the orientation of the floor below it, decreasing in width as the tower ascends. This spiraling form helps dissipate heavy wind downdrafts. The entire structure perches on seven, W-shaped columns that straddle a 56-foot-tall, glass-enclosed atrium.

Remarkable as the building is, the process of gaining public, governmental, and financial support proved difficult. Garrett Kelleher, founder of Shelbourne Development, purchased the site last summer for $64 million after the original developer failed to secure financing. He is providing initial funding without the help of financiers or presales—leading many observers to wonder if he'll be able to finish the project, whose price tag could soar to a reported $2 billion. Even so, a Shelbourne spokesperson says that Kelleher is confident construction will begin immediately and finish in 2010. *Erin de Losier*

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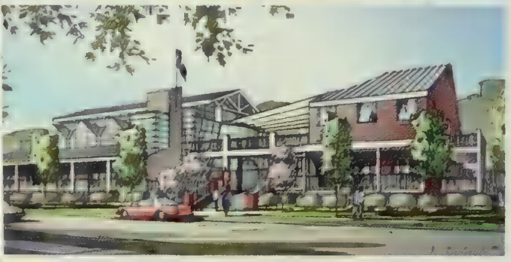
New Orleans musicians get sound new housing



The Ellis Marsalis Center for Music (left) will anchor Habitat for Humanity's new Musicians' Village in the Ninth Ward (above).

In the months following Hurricane Katrina, two well-connected musicians, Harry Connick, Jr., and Branford Marsalis, began thinking about how they could help New Orleans's music scene recover. They soon teamed with Habitat for Humanity to envision Musicians' Village: a neighborhood composed of 70 single-family homes, five duplexes, a park, and a performance center, that would provide musicians with affordable housing and work space. The move from cultural mission to concrete buildings has not been as simple—or as musical—as they initially hoped it would be, but it is finally showing success.

Musicians' Village is located on an 8-acre site in the Upper Ninth Ward. At its heart will be a 250-seat music hall. Designed by the local firm Mathes Brierre Architects, the 15,000-square-foot Ellis Marsalis Center for Music (named for the pianist and patriarch of the famed Marsalis clan) pursues a contemporary [illegible]-and-brick aesthetic in a [illegible] characterized by clapboard structures. Generous fenestration will let in plenty of daylight—which, coupled with photovoltaic cells generating the building's electricity, could qualify the project for LEED Gold certification. Construction is set to begin in September.

Roughly half of the residences, meanwhile, are already complete. Habitat began building the Village in 2006, still in emergency mode, concentrating on putting up structures as quickly as possible. The first few were nearly identical, differentiated mostly by their bright colors. But as construction progressed, Michael Bell, principal of Bell Architects, began introducing variation. He upped the ceiling height and pitch of Habitat's standard model to produce a design that more closely resembles the local shotgun vernacular. He also created a greater variety of footprints and added simplified versions of traditional Arts and Crafts detailing. Construction on the remaining residences begins this month and is expected to finish in November. Bell sees the flexibility of his design as a function of the village itself, which he describes as an "urban planning and policy experiment."

But the experiment has hit a few wrong notes. Credit problems and a lengthy application process discouraged many musicians from buying in the village. Moreover, fair housing laws prevent Habitat from selling to only a specific type of person. In response, the nonprofit group relaxed its application process by accepting performance records instead of pay stubs and allowing musicians to work less than the 350 hours of "sweat equity" it usually requires of new homeowners. It's also now aiming for a 60:40 ratio of musicians to other residents. *Susan H. Gordon*

Louisiana recovery continues to hit snags

Homeowners and municipalities in Louisiana are encountering serious funding roadblocks as they continue to rebuild. The biggest obstacle is the Robert T. Stafford Disaster Relief and Emergency Assistance Act, which governs how the Federal Emergency Management Agency (FEMA) administers aid programs.

The Stafford Act is a well-intentioned 1988 law designed to reduce fraud. It requires local governments to advance federal money for infrastructure repairs. Although the act promises they'll be reimbursed later through a "match-share" program, most municipalities are unable to afford the up-front costs. Many also criticize the law for requiring what they describe as complicated, inflexible worksheets that both governments and individuals must file when seeking FEMA aid.

"We have a laundry list of things we'd like to change about the Stafford Act," says Donny Williams, staff director for the Senate subcommittee on Disaster Recovery, which is chaired by Senator Mary Landrieu (D-Louisiana). "We believe it was built for a pretty bad disaster, but in no shape or form is it adequate for catastrophes." Critics also contend that FEMA is misinterpreting parts of the act. Williams cites the practice of "underevaluation," in which the agency only provides funding for property owners to rebuild a structure to its original condition. Without upgrades, he says, buildings remain vulnerable.

For its part, FEMA contends that it is simply following rules set forth in the act. James McIntyre, an agency spokesperson, says that President Bush has set aside local block funds to help communities make match-share payments. To cut down on delays in distributing funds, he adds, the agency has hired more staff and established better ways of organizing and verifying aid registrants. "We are constantly reviewing ourselves after each disaster to see what we did well—and what we can improve."

Requests for more improvements may be forthcoming. The Disaster Recovery subcommittee held hearings on the Stafford Act this spring, and Landrieu's office is drafting legislation that would modify the act to simplify the funding requests process and provide more federal money up front.

Other recovery operations in Louisiana are also working out their kinks. The Road Home program, managed by the Louisiana Recovery Authority and the state governor's office with federal grants, provides up to $150,000 in compensation to homeowners and loans to other property owners. The program has closed on 15,567 grants, and has paid out $768 million, but is far from paying the 38,000 requests it has received. Some estimates peg the total cost of funding them at $3 billion.

"There have been many more applicants than were originally anticipated," says Gentry Brann, a Road Home spokesperson. "State officials are now meeting to discuss what the shortfall is and what they can do to cover it." *S.L.*

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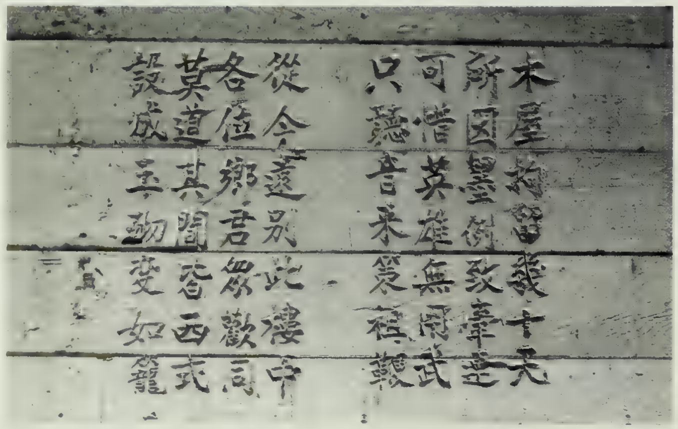
New day dawns for Chinese writing on the wall



The Architectural Resources Group (ARG) and Tom Eliot Fisch have resurrected a nearly lost piece of history by preserving the handwriting on the wall—literally—at the former Angel Island Immigration Station in San Francisco. Known as the West Coast version of Ellis Island, it was the entry point for close to 200,000 predominantly Chinese immigrants at the turn of the last century. Angel Island's compound consists of barracks, a hospital, and a powerhouse. These structures are less well preserved than their eastern counterparts. Demolition was planned for the early 1970s, until hand-etched poetry was discovered on the dormitory walls. A listing on the National Register of Historic Places soon followed.

When the Chinese Exclusion Act of 1882 was in full force, the island's barracks functioned as a detention center to control the number of immigrants allowed into the United States. Detainees covered its walls with hundreds of poems that expressed their anguish. One rhyming couplet reads: "Red tape has held us up in this wood shack for scores of days/Our talent lies waste." Treating these words like defacement, custodians painted over them—but immigrants would then recarve their writings.

Lead-based paint turned out to be "a perfect preservative" for the palimpsest of poems, says Aaron Hyland, AIA, an ARG principal who oversaw a $16 million, four-year restoration project. To conserve the poems, crews carefully cleaned the walls of dirt and mold. They then applied a wood preservative, reattached flaking paint layers, and treated the walls with a consolidant to stop the decay.

Translations of the poetry now form the core of an interpretative tour of Angel Island, which was designated a national park. Future plans for the immigration station include converting the hospital into a genealogy research center, and the powerhouse into a visitor's center. *Violet Law*

Selldorf to renovate Clark Art Institute

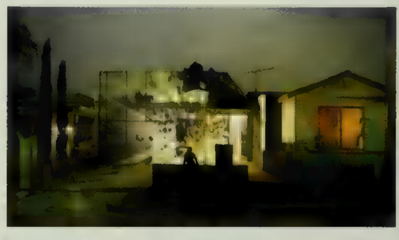
The Sterling and Francine Clark Art Institute has selected Selldorf Architects to renovate its museum in Williamstown, Massachusetts. Renowned for its collection of French Impressionist paintings, as well as American paintings by Winslow Homer, John Singer Sargent, and Mary Cassatt, the Clark occupies a neoclassical structure designed by Daniel Perry in 1955.

Michael Conforti, the Clark's director, says that the institute chose Selldorf because of the Manhattan-based firm's experience designing art galleries and its ability to accomplish historic renovations with tasteful subtlety. Citing its renovation of a 1914 mansion for the Neue Gallerie in New York City, completed in 2001, Conforti observes, [illegible] we will get a seamless renovation that will harmoniously blend the old and new spaces."

The revamped Clark will connect to a new exhibition, conference, and visitor's center designed by Tadao Ando. Work on both structures is due to be finished in 2013. By relocating some existing services into Ando's building, Selldorf will be able to repurpose 5,000 square feet at the Clark and thereby increase the amount of exhibition space by 40 percent—that building's overall size, though, will likely remain unchanged at 25,000 square feet.

Of her approach to historic renovations, principal Annabelle Selldorf explains, "The task is to find the right language, an existing vocabulary that allows you to have a presence without insisting on being first in line. That means making the building seem like it was really meant to look this way. We'll know the difference, and others might not notice. In other words, it will only get better, and it won't look altogether different." To hear more of the interview with Selldorf, listen to a podcast at architecturalrecord.com. *Christopher Kieran*

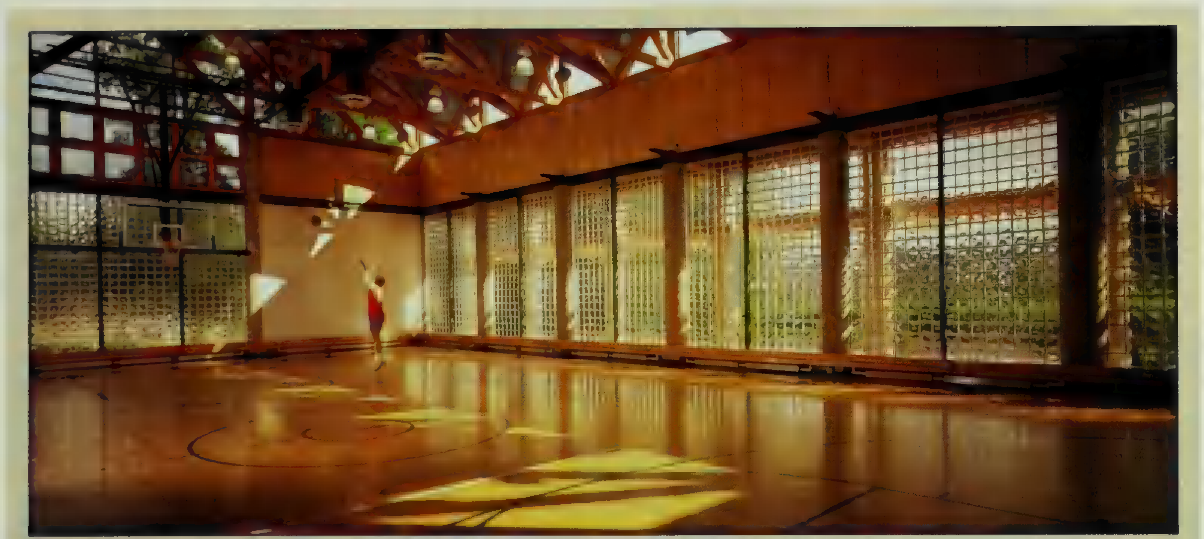
Virtual old house masks a new one



Rows of Victorian-era workers' cottages line the streets in Richmond Hill, a residential neighborhood of Melbourne, Australia. While these humble dwellings do not appear intimidating, the surrounding historic district's covenants make some architects cringe. Jon Clements, of Jackson Clements Burrows Architects, is among them. When given the opportunity to work there in 2001, afforded by his brother's acquisition of a house, he faced a quandary of expressing originality within preservation's restrictive prerogatives.

The house in question was a single-story weatherboard cottage in a significant state of decay. Clements's brother hoped to build a new structure rather than renovate. Although the local council initially objected, it eventually determined that he could replace the building on the condition that the new structure's height, form, and details were similar. Yet Clements was uninterested in merely rebuilding the old house. "Heritage controls often lead to the imposition of prescriptive design, resulting in 'mock' heritage buildings that undermine the value of quality assets," he explains.

Clements instead wondered if he could "invoke the idea of context and memory by making it virtual." He eventually arrived at the concept for Old House. Its front facade is a one-to-one scale graphic of the original house, printed in reverse on translucent digital film applied to the inside surface of a panelized, two-story glass wall. This projection masks a two-story contemporary residence, taller than the heritage council would otherwise allow. If Old House's facade is seen as a Luther-style nailing of architectural theses to preservation's door, Clements isn't disappointed. "It's a response to the difficulty of making architecture in heritage zones," he admits. Finished in 2005, it has certainly invigorated the conversation about preservation. *C.K.*



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Little-known law could cost small practices plenty

The American Institute of Architects (AIA) has joined a coalition of more than 60 business groups attempting to repeal a little-known but far-reaching tax law called Section 511. Passed last year, the provision requires federal, state, and some local governments to withhold 3 percent from virtually all government contracts to help cover the contractors' federal taxes.

Included in the Tax Increase Prevention and Reconciliation Act of 2005, which aimed to cut taxes and boost federal revenue, Section 511 applies to contract payments beginning in 2011. Proponents say it will help the Internal Revenue Service collect taxes and help to recoup $7 billion in unpaid back taxes owed by roughly 60,000 federal government contractors.

"The [IRS's] National Taxpayer Advocate has repeatedly reported that systematic withholding is the most effective means of supporting and contributing to a taxpayer's ability to comply with income-tax reporting requirements," states a report authored by the Senate Finance Committee, chaired by Senator Chuck Grassley (D-Iowa).

But critics contend that Section 511 is too costly and could hurt millions of governments and businesses alike. "It's an ineffective way of dealing with a serious problem," says Julie Roin, a tax professor at the University of Chicago Law School. "The only thing the law does is ensure that if companies go belly up before their taxes are paid, there's some fund from which the government can get paid its share of taxes."

For its part, the AIA worries that the law will hit design businesses hard, especially small ones. "If you're a single guy or a small firm, that's going to create a lot of new regulatory headaches for you," observes Andrew Goldberg, the AIA's manager of federal regulatory affairs. Although federal regulations have yet to be written, making many details of the law unclear, the AIA is concerned that architects' cash flow might suffer with 3 percent lopped off their contracts up front. For larger corporations, which typically face a 35 percent federal tax rate, 3 percent will represent only a sliver of their tax bills.

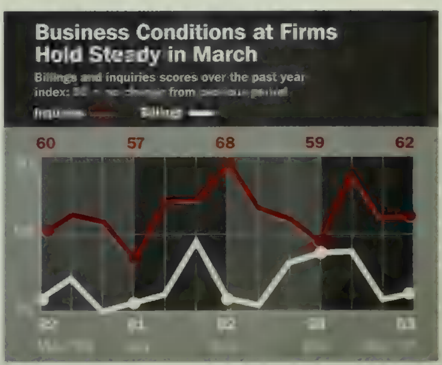
The AIA also says that the public will lose because the law might push some talented architects to avoid the new burden by choosing private rather than government building projects.

Other groups are concerned about who will bear the cost of the new law. Chris Braddock, of the U.S. Chamber of Commerce's Government Withholding Relief Coalition, explains that both businesses and governments will have to spend millions to adjust their accounting systems to accommodate the change. Calling this "an unfunded mandate," he observes, "it's not free—it's not like you click a switch and turn it over and withhold 3 percent."

Braddock adds that it's a "steep road to climb to get repeal." In the current congressional session, 31 senators and representatives—including seven Democrats—have signed on as co-sponsors to House and Senate bills to repeal Section 511. The Senate Finance Committee and the House Ways and Means Committee are reviewing the legislation this spring, but these bills may not make it to a vote. Similar proposals to repeal Section 511 last year never made it out of committee. *Barbara J. Saffir*

ABI steady on—for now

When it comes to weather, March is usually in like a lion and out like a lamb—and when it comes to architectural firms' billings, the month is typically all lion, showing strong gains. But not this March, according to the American Institute of Architects' Architectural Billings Index, which tracked only a partial rise in activity over February. The ABI grew just 0.1 point, to 52.6 (any score above 50, though, indicates growth). This modest increase could indicate that the market was catching its breath after a stronger showing than usual earlier in the year. Another indicator that activity remains healthy was the number of inquiries made to architecture firms, which also held steady. The AIA compiles its ABI based on surveys sent to 300 firm leaders primarily in the commercial design sector. Studies have shown that the index is a good predictor for construction spending nine to 12 months in the future. *J.M.*



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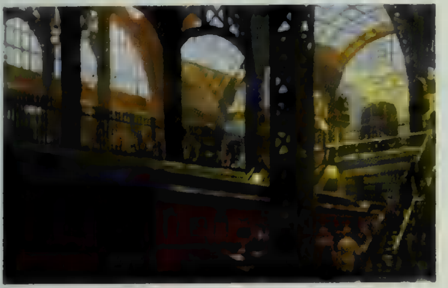

Pennsylvania Station's demise has inspired a children's book. "It's a reminder that buildings are not disposable—they are the heart and soul of all great cities," says William Low, author and illustrator of *Old Penn Station*, published in April. Low has only known the 1960s replacement station in Manhattan, but he hand drew and then photoshopped images that capture the dappled suffusion of light inside McKim Meade & White's 1910 commuters palace. *J.M.*

The Department of the Interior added a dozen sites to its list of National Historic Landmarks in April. They include Frank Lloyd Wright's Price Tower (left), finished in 1956 for an oil company in Bartlesville, Oklahoma. For a side show of all the newly named landmarks, visit architecturalrecord.com. *J.G.*

Preservation as Provocation, an ideas competition to increase awareness about the lack of preservation pedagogy, drew 975 registrants. Sponsored by the Association of Collegiate Schools of Architecture and others, it asked students to rethink Eliel Saarinen's Cranbrook Academy of Art library. Winners will be picked on June 1. "We're not trying to make specialists out of students, but we want preservation integrated into their general curriculum," says organizer Jorge Otero-Pailos. *J.M.*

Denis Glen Kuhn, FAIA, a partner in Ehrenkrantz Eckstut & Kuhn Architects, died on May 10 at the age of 65. Best known for preservation work, his projects included restoring Cass Gilbert's Alexander Hamilton Custom House in New York City, and Union Station in Kansas City, Missouri. A native New Yorker, Kuhn received his B.A. in architecture from Brooklyn's Pratt Institute. He is survived by his wife, Gudrun, three children, and four grandchildren. *Tony Illia*

Zaha Hadid gets top billing at this summer's Lincoln Center Festival in New York City. The annual presentation of performing arts this year includes the North American premiere of Ballet National de Marseilles's *Metapolis II*, a multimedia piece conceived by company director Frédéric Flamand in collaboration with Hadid, who designed the production's sets and costumes. The work incorporates dance, video, and architecture to explore the interaction of people and the urban environment. It will be performed on July 25, 26, and 27. *Leslie Yudell*

Olson Sundberg Kundig Allen Architects created a childrens' exhibition about Noah's Ark that opens this month at the Skirball Cultural Center in Los Angeles. Alan Maskin, a firm principal, designed the pairs of animals, which are made of repurposed and recycled materials, while Jim Olson, a partner, did the ark. The show explores flood narratives from cultures worldwide. *J.M.*

The American Institute of Architects elected new leaders at its 2007 National Convention in San Antonio last month, which drew 21,640 registrants. Delegates from local components nationwide selected Marvin J. Malecha, FAIA, as president for 2009, and Peter J. Arsenault, AIA, and Clark Manus, FAIA, as vice presidents. Hal P. Munger, FAIA, ran unopposed for the office of treasurer. The vice presidents and treasurer serve a two-year term that begins this December. *J.M.*

ENDNOTES

- Foster + Partners sold a roughly 40 percent stake to the group 3i, its first outside investor. The practice is worth a reported $600 million.
- A team led by Michael van Valkenburgh Associates won the Lower Don Lands competition to transform 2,400 acres of Toronto's industrial waterfront into housing and recreation spaces.
- Bill Clinton's foundation brokered a $5 billion loan and labor program to help landlords in 16 cities worldwide retrofit their properties with energy-efficient lighting and other building systems.

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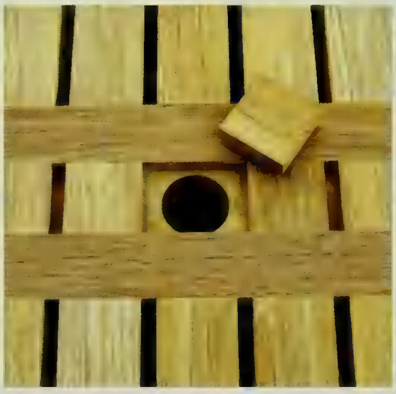

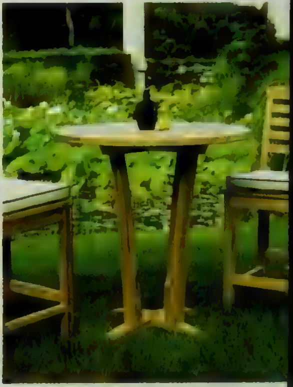

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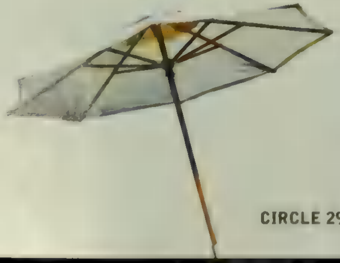

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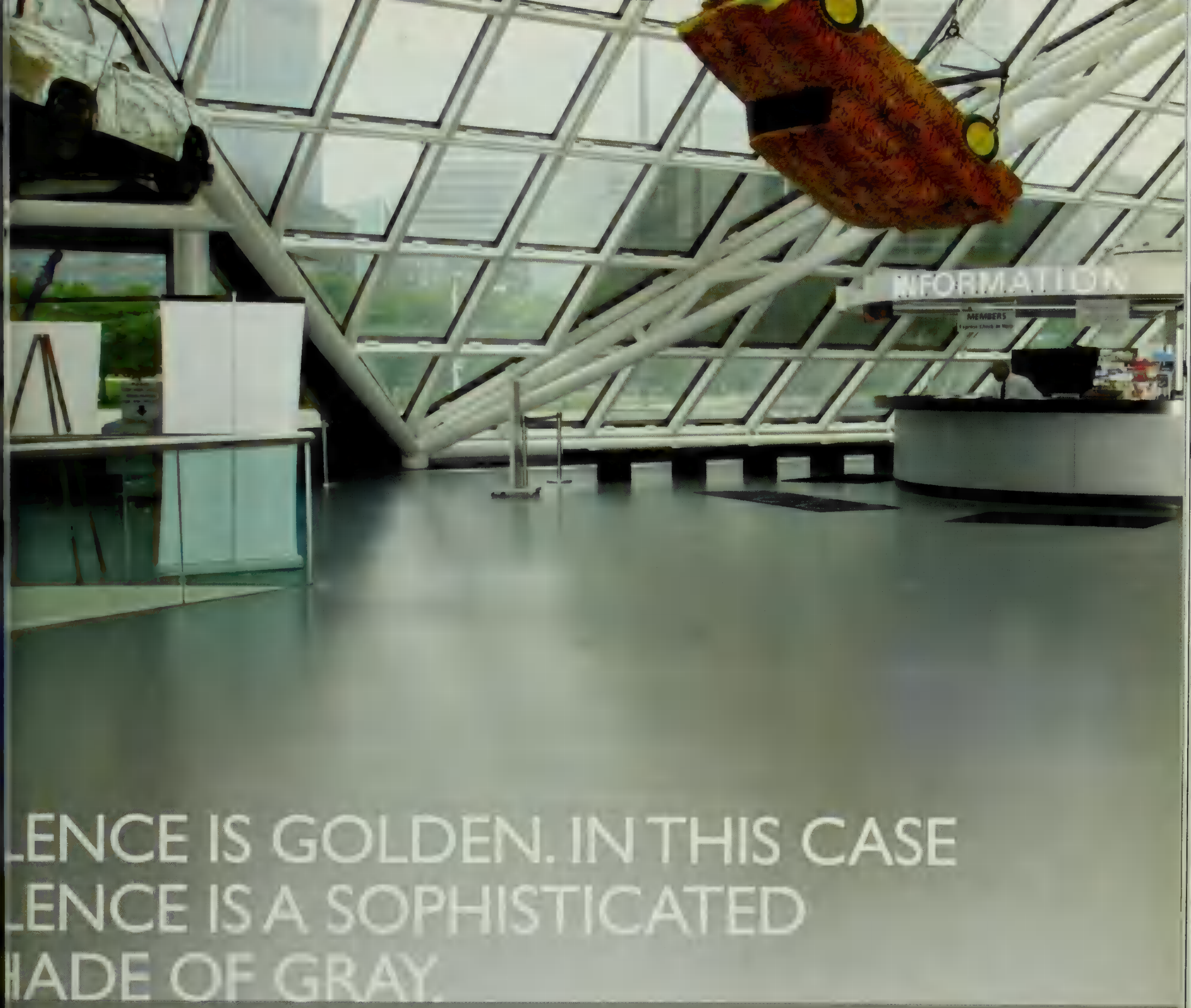

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In the world of design, theory, discussion, and practice meld to shape our physical environment. For New York City firm Caliper Studio, it's the making that inspires the passion, as they combine design services with metal fabrication. In Work, it's discussion about school design that caused the American Architectural Foundation and Target to team up and get students involved. Comment on articles, express your ideas, or add photos to our photo galleries at architecturalrecord.com.

Design

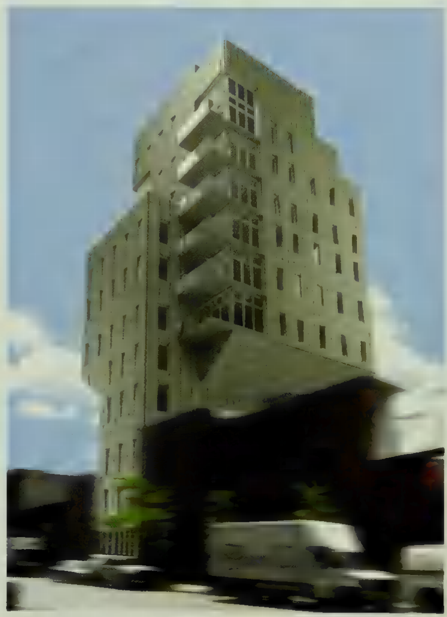
Caliper Studio: Making it with metal

With real estate prices skyrocketing throughout New York City, manufacturing and the large spaces it requires have all but disappeared from its urban centers. It's a surprise then to find Caliper Studio has not only found a light-industrial niche—what Stephen Lynch, one of the studio's founders, likes to call "micro urban manufacturing"—but is flourishing in it. Launched in 2003 by Lynch, fellow architect Jonathan Taylor, and sculptor Michael Conlon, Caliper Studio is the result of the trio's combined experience with and passion for architecture and metal fabrication. Now located in the Williamsburg section of Brooklyn, the firm consists of 15 full-time employees and runs a 7,000-square-foot workshop next door to its studio space.

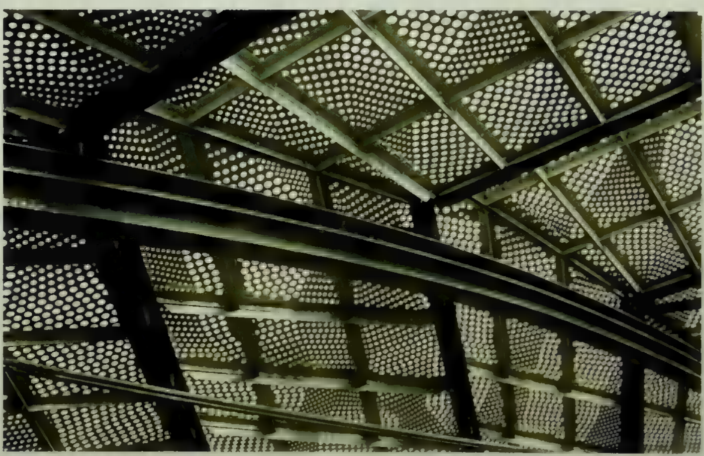
While Caliper started out with small building-component commissions, such as staircases, sliding doors, and metal canopies, it has recently designed a number of impressive ground-up construction projects, such as a condominium tower in Manhattan's swanky Highline district, as well as a movie theater and condo complex just down the street in Williamsburg.

Each of the studio's projects features clever metal accents. For the Brooklyn Kinetoscope, a backlit metal panel facade recalls the bright, flashing lights of old cinemas. The 1,296 metal panels on the Manhattan condominium facade are configured according to a complex algorithm.

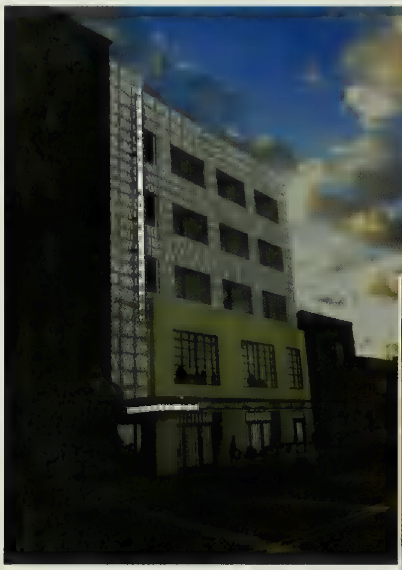
The added intricacy of Caliper's projects means balancing the time in the shop with hours using BIM and parametric modeling. "We're getting into scripting, and involving more complex design in our drawings," Lynch says. "But the product can always be achieved with simple tools," notes Jean-Cedric de Foy, one of the firm's architects.

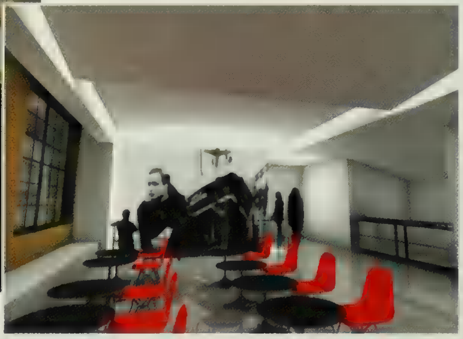


548 W. 29th St., New York City, 2009
Near the High Line in Chelsea, this 12-story condominium building will cantilever 12 feet over its neighbors on both sides. It has a folded metal facade with panels of varying height.



Lincoln Square Canopy, New York City, 2005
Built for a community center in a public housing development behind Lincoln Center, this prefabricated steel roof structure provides shade and dappled light.





136 Metropolitan Ave., Brooklyn, 2008
A warehouse converted to a cinema with three theaters and nine condominiums on new upper floors. Zinc panels and backlit cast-glass discs will clad the building.

This initiative to match new design technology with age-old metal fabrication techniques is one of the firm's signatures. For example, Caliper designed a 2,400-square-foot atrium in Bridgeport, Connecticut, using 3D modeling, but assembled parts for the atrium's huge trusses with vintage equipment. Lynch and Taylor agree that this process not only saves the architects time, but also the clients money. And being able to quote lower prices has allowed Caliper to work with clients such as public entities, who have limited budgets. Indeed, while residential work has been the firm's bread and butter in the recent past, Caliper looks forward to working on more public projects in the future.

One other major advantage of having a shop right next to the studio is the ability to make test models. While most architects use their drawings to describe their intentions, Caliper frequently exercises its ability to work on concepts and materials with physical samples. Standing among the many models made in the workshop that now line office tables, Taylor explains that this unique situation has made all the difference in the work that the firm does: "We couldn't be the kind of designers we are now without our fabrication background." Caliper seems less like the last survivor of a dying breed than the cutting edge of architectural practice. *Diana Lind*

For additional photos and projects by Caliper Studio, go to ***architecturalrecord.com/archrecord2/****.*

Work

Great Schools by Design hits the spot

In this age of accountability for American teachers and testing achievement for their students, it makes sense that school buildings should also meet 21st-century standards. However, many of the United States' 120,000 schools are in disrepair or otherwise unsuited for today's tech-savvy teaching. For the past two years, a program called Great Schools by Design, which is administered by the American Architectural Foundation and sponsored by the Target company, has been trying to change that. Working with 60 school districts, including some in the hurricane-ravaged areas of the Mississippi Gulf Coast, the program matches school leaders with architectural innovators. This year, the AAF/Target team has added a new program to its repertoire: the Redesign My School contest.

The competition, which began March 1 and is open to participants until the end of June, puts school redesign in the hands of students in grades 9 through 12. The winner of the contest will be awarded a $10,000 college scholarship, seven finalists will receive $5,000 scholarships, and 20 semifinalists will get Target gift cards.

"We wanted to get students involved in a creative way," says Ron Bogle, Hon. AIA, president and C.E.O. of the AAF. "The purpose of the contest is to help elevate the national discussion about schools and raise awareness. And we want to hear from students what it is they'd like in a school, because students aren't part of focus groups." He also notes that the contest will encourage students to consider architecture as a career.

Getting kids involved in the national discussion about school design is key to the competition.

Partnering with Target has allowed the AAF to reach a broad audience, and within the first week of the redesign yourschool.org Web site going live, 2,500 students had registered for the contest.

Laysha Ward, vice president of community relations for Target, explains that this contest is another extension of the company's mission to democratize good design. "This program brought together two of our major philanthropic areas: education and design. It supports our commitment to having children be prepared for success and of making design available to all," she says.

Fifty other organizations and institutions, such as the AIA and the National School Boards Association, have also offered to promote the program. This is the largest contest of its kind (although similar ones have been held in Britain and Australia), and as Ward notes, it's the only one to "lend a voice to all the school stakeholders—teachers, parents, civic holders, and even corporate leaders."

While the contest ends this summer, the AAF will study the entries afterward to develop an analysis of the students' ideas. *Diana Lind*

To learn more about Great Schools by Design and the American Architectural Foundation, go to ***architecturalrecord.com/archrecord2/****.*

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Can an indigenous culture survive in a jungle petropolis?

Critique

By Michael Sorkin

Roads open the jungle (right) to many kinds of development and change the ecological and cultural balance. Heavy machinery (below) makes quick work of creating a jungle urbanism that includes new towns, camps, and settlements (below center) and large oil facilities (below right).

Pink Floyd was playing on the loudspeaker of the ferry transporting us over the Rio Napo into the 2,700-square-mile Yasuni National Park in the Amazon basin in Ecuador's El Oriente region. We had missed the previous ferry after making hours of slow progress over rutted roads through a largely denuded countryside, then had to kill an hour in a shoreside scene of extreme informality—hot sun, muddy, littered paths along the river, lazing dogs, scattered houses, a little shop, and a dirt parking lot for waiting vehicles. The scene on the other side, however, was more like Guantanamo. From the dock, my students from City College and I walked along narrow chain-link passages topped with razor wire, passed though a magnetometer, had hand luggage X-rayed and passports balefully compared to a list sent in advance, and watched our bus be taken into a camouflage-painted metal shed for the once-over. No Coke stands or pleasantries here. Instead, there were gun towers, searchlights, signs forbidding alcohol and drugs, and M-16-toting men from the Ecuadorian army and private security firms with Orwellian names like Servisafe and Servipro. An unexpected gateway to paradise.

Yasuni is one of the most biodiverse areas on the planet—a UNESCO "world biosphere reserve"—a river-laced rain forest teeming with life and home to the indigenous Haorani people. And to oil. Crossing the river, we were entering Block 16, one of the giant concessions that have platted Oriente since 1967, when a consortium of Texaco and Gulf discovered huge oil reserves there. By mid-1972, exploitation was in full swing and a 312-mile-long pipeline had been constructed from the now-booming village of Neuva Loja (universally called Lago Agrio—Bitter Lake—after Texaco's headquarters in Texas) to the coast from which the crude is shipped abroad, primarily to the U.S. The high security was intended to protect this resource, to secure the jungle against incursions by terrorists, smugglers, narcotics traffickers, poachers, loggers, and settlers. Of course, it did nothing to protect the area from the traumatic impact of petroleum itself.

The effects of oil on the Ecuadorian landscape have been profound. On the one hand, oil has fueled a boom economy which, especially in the go-go 1970s and '80s, generated much middle- and upper-class prosperity and government investment in public infrastructure. On the other, oil has been an environmental disaster, say people living in the area. Thousands of square miles of rain forest have disappeared. The lives of numerous indigenous peoples have been forever disrupted. And vast areas have become toxic. According to a class-action lawsuit filed in 2003 against the oil companies by 30,000 settlers and people indigenous to the Amazon, Texaco and its successor, Chevron, have not just spilled oil in the jungle (more than what leaked from the Exxon Valdez), but also dumped billions of gallons of toxic wastewater. Much of the oil is extracted via the injection of water under high pressure, and rather than following the standard practice of deep re-injection of wastes, the company simply dumped it in ground-level pits, says Judith Kimmerling in her book *Amazon Crude* (1990). Plaintiffs in the lawsuit claim these practices have had severe consequences on the health of people living in the area. The lawsuit, which attempts to recover the cost of the estimated $6 billion cleanup, continues to work its way at a snail's pace through the courts, as does an Ecuadorian gov-

Contributing editor Michael Sorkin is the director of the urban design program at City College of New York.

ernment suit claiming fraud on Chevron's part.

The oil concessions—covering thousands of square miles—have a very specific spatiality, a format that is, by stages, turning the forest not simply into a degraded, toxic environment but into an urbanism, a city of a new "disarticulated" character that combines webs and nodes, formality and informality, density and dispersion. Its components include grids of seismic trails (10-foot-wide pathways in which a 6.5-to-16-foot-deep hole is dug every 328 feet to hold 22-to-44 pounds of dynamite for acoustic exploration), networks of wells and toxic dumps, pumping stations, refineries, tank farms, pipelines, helicopter landing zones, airports, roadways, security checkpoints, military installations, and a proliferation of camps, depots, towns, and villages. In an environmental lawsuit filed against Atlantic Richfield in 1993, the plaintiffs inventoried—in this one concession—339 wells, 18,000 miles of seismic trails, 300 miles of roads, 600 toxic-waste pits, and 1,368 helicopter landing sites. Welcome to Petropolis.

The roadways slashing through the rain forest instigate both extraction and attraction, becoming the medium for still larger territorial reorganization. As roads are built, forest is cleared to make way for three rows of agricultural plots, each 820 by 6,562 feet, creating a space 7.5 miles wide and, in aggregate, hundreds of miles long, a vast linear settlement occupied by *colonos* from elsewhere in the country—well over a quarter million have poured into Oriente since the discovery of oil. Much of this is pasture land: rainforest soils are a poor basis for conventional agriculture, and clearing the jungle dooms the richly symbiotic biodiversity it supports. The pattern brings a new economic organization as well as new styles of agricultural activity, new homesteads, new villages, and new towns. Much like the [illegible] gridding of the American west, the remorseless geometry of subdivision accomplishes a dramatic literal and conceptual shift: What was once "wilderness" becomes urban, part of a global system. The long miles of farms and villages in the cleared jungle and the check-point at Block 16 are part of the same Petropolitan urbanism that produces the freeway morphology of Los Angeles and Houston and the glittering skylines of Dubai or Kuwait City.

Of course, an urban environment requires urban citizens, and the boom has attracted hundreds of thousands. But what of those already there and their sedulously un-urban lifestyles? Two years after Texaco discovered huge reserves of oil in Oriente, the Ecuadorian government created a protected "reserve" for the Huaorani. Desperate to cash in on the oil but anxious about the potential cauldron of conflict between native peoples, oil workers, and the accelerating influx of settlers and tourists, José Velasco Ibarra, the president at the time, handed the protectorate's administration to the Sumner Institute of Linguistics, a Protestant evangelical group that has been active in Ecuador since the 1950s and specializes in the translation of scripture into native languages.

Like that of their missionary predecessors from centuries past, the Sumner Institute's tragic endeavor entailed forcing the "natives" into villages, establishing schools with the Bible at the center of the curriculum, and introducing capitalism. The results included forest clearing for larger fields, agricultural specialization, a money economy, plus the rapid introduction of alien cultural forms, from trousers and radios to beer and zinc roofs. The natives were urbanized, made into model citizens for a new order. Resistance was not long in developing, and there were numerous instances of speared priests and oil-workers. More important, there has been remarkable grass-roots political organization and consciousness-raising by native peoples, a crucial result of which was the formation in 1986 of CONAIE, the Confederation of Indigenous Nationalities of Ecuador, which has now become a major political power working on behalf of both human and environmental rights.

In 1989, the Ecuadorian government, faced with declining oil prices and eager to keep its revenue stream flowing, prepared—with financing from Conoco Oil—a new "management" plan for the as-yet-untapped Yasuni Park, under which half was zoned for oil-company use, the other half for the Huaorani. In 1993, a modified plan was put into place in which the Huaorani were nominally incorporated into the administration of the combined entity. For them, this meant jobs as security guards (in their own formerly peaceable homeland) and oil workers. It also meant new—and desperately inappropriate—houses for some, generally clustered in what can only be described as concentration camps. This for a people that has, for millennia, lived nomadically. In addition, it brought the ravages of imported diseases and a rapid education in modernity.

This is not the place to settle the question of the rights of indigenous people or to debate the respective arguments for literacy, technology, and participation in national life versus the logics of protecting the ability of "primitive" peoples to defend and continue historic patterns of settlement and life. The point is simply that the lives of these people have undergone tremendous rupture and their culture sent down the road to extinction on the basis of somebody's idea of the greater good—that of the Ecuadorian economy, which continues to float on oil (as it had earlier done on monocultures of cacao and bananas). Oil sales provide close to 50 percent of government revenue (about half of which goes to the military). And since the final nationalization of oil in 1989, the oil economy has put the government in the admirable position of actually owning the source of its own revenue.

The machinations in Yasuni, with the repeated redrafting of the borders of the park, the concessions, and the ethnic reserves (for a people whose imagery did not house the concept of such boundaries) are part of a broader system of overlapping territories defined by relations of property that inscribe in the jungle the patterns of modern space and exchange. Northern Oriente shows all of this raised to a flashpoint of toxic weirdness. Those troops in Yasuni were not simply protecting the oil but keeping out the cocaine industry (increasingly forced toward and over the Ecuadorian border by the U.S.-sponsored "Plan Colombia") and its own networked system of extraction and distribution along a parallel labyrinth of roads, airstrips, laboratories, villages, and flows of capital.

Like any city, this one overlays infrastructures, territories, interests, technologies, densities, communities, histories, and morphologies. Its differences from the "post-urban" edge cities that have become the characteristic mode of urban growth in so many parts of the world are not of kind, simply of degree. Both patterns are environmentally corrosive and conceptually predicated on the domination of distributed rather than concentrated systems. And both are based on a model of urban development that privileges extraction—of oil, cocaine, or land values—over sociability, permanence, or culture. Although only half the world's population—by traditional means of measure—lives in cities, the planet itself is immeasurably more urbanized.

Yasuni and the Amazon basin throw this into such sharp relief because the rain forest remains our paradigmatic "state of nature"—the antithesis of urban civilization—and because as our green sensibility grows (and the jungle disappears) we have come to understand the degree to which our own survival depends on the fate of the forest. In much the same way, respect for indigenous peoples and traditions is an emblem of our understanding of the risks of globalization's obliteration of difference and freedom of economic action. The Huaorani are probably doomed, but in their demise, it is urgent that we see ourselves. ■

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Louis Kahn's Trenton Bath House in New Jersey is fondly remembered

Commentary

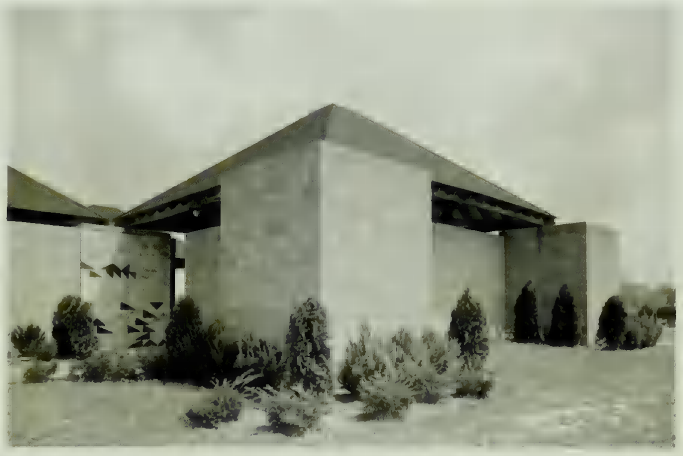
By Paula Deitz

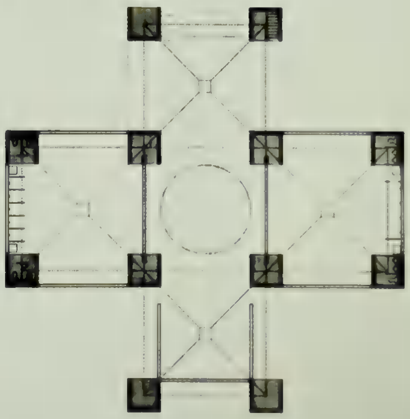
Last September, on Labor Day, I took the train down to Trenton, New Jersey, to lounge by the pool at the Jewish Community Center of the Delaware Valley (formerly the Trenton Jewish Community Center) on its last official open day before the entire complex was sold to local authorities. As I approached the compound through the Bath House designed by Louis I. Kahn in 1955, now in a derelict condition, I had a clear memory of the first time I entered the changing room for women in 1956 as a counselor at the center's day camp. With my young charges in tow, I rushed into this luminous space with sunlight pouring through the open clerestory under the timber rafters and through the square oculus in the roof suspended above. A summer airiness pervaded this square enclosure of simple concrete blocks as the girls squealed and ran around in unrestricted freedom.

My mother served on the center's Construction Committee, which selected Kahn as the architect in 1954, and I remember her returning from evening meetings dazzled by his presentations. From then on, Kahn became a household word since my father, a vice president of the Trenton Jewish Community Center Association, championed the construction of the Bath House ahead of the center's main building; the outdoor swimming pool was considered a luxury in those days, tantamount to a country club. In an editorial in the center's newspaper, my father wrote: "The intensive work of the committee followed by the outstanding planning of our architect, Louis I. Kahn of Philadelphia, will give to us a recreational facility that will be second to none, anywhere in the country.... Why wait two years hence to have this opportunity when we can have it now at no extra cost?" I was reminded of this editorial by Susan G. Solomon's book, *Louis I. Kahn's Trenton Jewish Community Center* (2000), a remarkably insightful detailed study of the sociological and architectural story behind the center's move from downtown Trenton (and an indoor swimming pool) to a campus in suburban Ewing Township.

Being a native Trentonian has put me in good stead over the years with architect friends from as far away as Japan: I have led many a tour back to the Bath House, even in the middle of winter. During my September visit, I recalled the 1978 show of Kahn's glowing travel sketches at the Drawing Center in New York City along with subsequent exhibitions that revealed his experience abroad as a resident architect at the American Academy in Rome in 1950–51.

From his pastel studies of ancient ruins—stone masses defined by light and shadow—Kahn would evolve his brand of Modernism subsumed by the forms of Classical humanism. Little did we youngsters in Trenton realize in the 1950s how pivotal the Bath House was as Kahn's first work to synthesize ancient forms into pared-down masonry structures. Its four pyramidal roofs sharply delineated against the sky evolved from pyramids he drew at Giza. Kahn told *The New York Times Magazine* in 1963, "I discovered myself after designing that little concrete-block bath house in Trenton." Later in 1973, a year before he died, he jotted down these enigmatic lines in his notebook: "The Pyramids seem to say 'let me tell of the desire that motivated being and the meeting with Nature in order to be.' "





Louis Kahn's Bath House (above) at the Jewish Community Center of the Delaware Valley (formerly the Trenton Jewish Community Center) was designed in 1955 as four pyramidally roofed pavilions in a Greek-cross plan.

Of the Bath House's five square areas in the Greek-cross formation, only the central square, or atrium, is roofless. The four outer hip roofs float above hollow column supports that became the baffled entrances to the changing rooms opposite each other in Kahn's innovative system of creating secondary interior spaces that serve other spaces: the servant and the served. The

Paula Deitz, the editor of The HudsonReview *frequently writes about landscape and architecture.*

entrance square functions as the check-in room, and the far one is an open lounge area with a ceremonial staircase to the raised pool. At the main entrance, Kahn painted an abstract, Adolph Gottlieb-style mural, no longer there. He had envisioned a Classical rectangular grove of trees as a forecourt leading to the Bath House, but it was turned down in favor of suburban-style shrubbery, which has hastened the concrete blocks' deterioration due to moisture. Vincent Scully attributed the original taut circle of gravel within the square courtyard of the atrium to Kahn's embrace of Vitruvian Classical theory illustrated by Leonardo da Vinci's drawing *Man of Perfect Proportions,* circa 1492.

I left Trenton for college and life's other adventures after my Bath House summer, so I was no longer around when Kahn designed and completed the second stage in 1957, referred to as the Pavilions or the day camp, and constructed in a back woodland area. Now fenced in for safety purposes, they face two other pavilions enclosed with brick: one for the director's office, the other for the camp's rest rooms. When I walked over to see these shelters on Labor Day, the crumbling concrete colonnades of the two open pavilions, set at a slight angle to each other, eerily resembled the ruins of the powerful Doric columns in Kahn's drawings of the mid-6th-century-B.C. Temple of Apollo in Corinth. According to a passage quoted by Solomon in her book, Kahn compared these open shelters for campers to the stoae of ancient Greece.

As the story goes, a shift in leadership on the center's Construction Committee, followed by escalating costs and a widening gap in understanding between client and architect, resulted in Kahn's eventually losing the commission to build the center itself. Architects Kelly & Gruzen completed the present structure in 1962. This in no way [illegible] the importance of the Bath House and the Pavilions, and Kahn's drawings of them along with the multiple design stages for the main building have been prominently displayed in major exhibitions of his oeuvre ever since.

For some time, with news of the potential sale of the Jewish Community Center and its campus, the future of the Bath House had been a cliffhanger and a worry to the architectural community, particularly after the world was given a poignant close-up view of its present condition in Nathaniel Kahn's film *My Architect: A Son's Journey.* In the film, Kahn's son is taken on a tour of the clearly dilapidated facility by Anne Tyng, who was the associate architect on this and other projects.

Thanks to the efforts of Susan Solomon, who discovered the Bath House when she oversaw the architectural slide collection at Princeton University, and a graduate student, Lydia Soo, the building was placed on the National Register of Historic Places in 1984, the same year it received minimal protection from the Ewing Township Historical Commission. Even so, the nonprofit organization Preservation New Jersey cited the moss-covered building in 1997 as one of the 10 most endangered historic sites in the state. Since the area was zoned for residential use, nothing would have prevented a developer from simply cordoning if off or eventually tearing it down when it was deemed ruinous. The organization Docomomo drew attention to the problem in a newsletter, and Solomon organized a worldwide letter campaign to put pressure on all the parties involved during negotiations that had moved slowly over a period of a few years.

While stories like these usually end in a dismal fashion or, at best, by reclamation with a creative reuse, the future of the Bath House has, fortunately, been secured by an enlightened and elegant solution that, best of all, guarantees its continued use as a bath house for a swimming pool, albeit in a renovated condition. The man of the hour is Brian M. Hughes, the county executive of Mercer County and son of former New Jersey governor Richard J. Hughes.

The county purchased the 36-acre property, its largest yet, with funds from the Open Space Preservation Trust Fund, while Ewing Township acquired the main building on 2 acres as a senior center. Mercer County then transferred ownership of its property to Ewing. The transfer comes with a conservation easement to protect its outdoor character as a municipal park with a public swimming pool, and a historic-preservation easement to protect the Bath House and Pavilions. The county also anticipates funding from the state's Green Acres Program completing financing at the state, regional, and municipal levels. Finally, an application will be filed with the New Jersey Historic Trust for funds toward the restoration of the Kahn buildings.

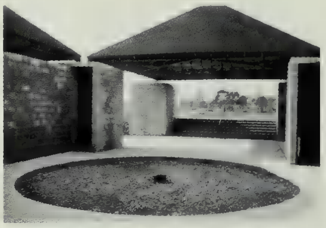
"Greater Trenton possesses a unique spectrum of historic buildings," explains Hughes, who valued the opinion of local architects assuring him of the significance of the Kahn buildings. He now sees them as a boon to architectural tourism.

In 2003, the Princeton, New Jersey, architecture firm of Farewell Mills Gatsch drew up a million-dollar preservation plan, which has now been updated, with extensive documentation for the Bath House and Pavilions laying the groundwork for future restoration and rehabilitation.

Meredith Bzdak, one of the architects involved, immersed herself in the job by changing in the Bath House and sitting by the pool to take the measure of the building and the patterns of light on the walls. "It was unlike any other experience in architecture to observe how he achieved his goals—a Classical order, yet romantic and natural—with simple materials," she says. Still, the restoration will be complex due to new drainage systems, reconstruction of interior walls, the restitution of the abstract, painted mural, and introduction of Kahn's intended landscape setting of a grove of trees.

When Nathaniel Kahn began shooting material for his film, he did not feel he had to see the Bath House right away, assuming it was not Kahn's most important building because it was so small. "When I finally did see it with Anne Tyng," he recalls, "I was knocked out by it and understood immediately the magnitude of the breakthrough for my father and its enormous impact on the development of architecture." He admired how Kahn achieved so much without a single door or window and solved the problems and challenges set forth by the program.

"At a deeper level," Kahn's son says, "that a building can be both ancient and modern and so small, with a simple and mundane purpose, was both emotionally and intellectually moving." ■



On July 31, 1955, the pool and Bath House opened to its members (left). At the center of the Pavilions is a square space inscribed with a gravel circle, which Vincent Scully finds evocative of da Vinci's famous *Man of Perfect Proportions*, circa 1492.

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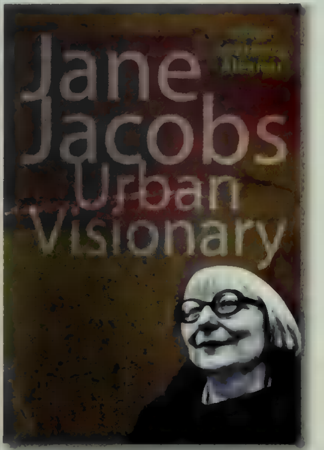
Telling the story of a preservation pioneer and the city she loved

Books

Jane Jacobs, Urban Visionary, *by Alice Sparberg Alexiou. New Jersey: Rutgers University Press, 2006, 233 pages, $25.*



Few writers or architects have had more influence on a city than Jane Jacobs had on New York with her first book, *The Death and Life of Great American Cities*, and with her grassroots activism, which stopped the "urban renewal" of Greenwich Village and the destruction of SoHo, Chinatown, and Little Italy by the proposed Lower Manhattan Expressway. Eventually, her views became conventional wisdom nationwide. A book about her writings—and her—is long overdue.

Alice Sparberg Alexiou aptly summarizes *Death and Life* and provides the intellectual and political context in which it appeared in 1961. She brings the spunky activist to life on the page even though Jacobs refused to cooperate with her (or anyone else), contending that she wanted to save her time for writing. Alexiou offers glimpses of the private person that Jacobs (1916–2006) tried to keep from the public eye—showing her, for example, tenderly nestling one of her children at a time when she defiantly demonstrated in the streets—and captures her odd combination of moxie, wit, perseverance, and eloquence. And she shows how Jacobs's way with words was crucial to her successes.

She explains how Jacobs's childhood in Scranton, Pennsylvania, as the daughter of an independent-minded doctor and a nurse, instilled in her the values and confidence to achieve what she did, even without a college degree, and how her marriage to architect Robert Jacobs provided needed psychological and financial support. Alexiou writes about the Jacobs family's move to Canada during the Vietnam War with their draft-age sons (and daughter); and Jacobs's life in Canada, where she became a citizen in 1974; and briefly describes Jacobs's six later books. But three quarters of this biography is devoted to *Death and Life*, which most readers already know, and to Jacobs's similarly well-known activities in New York right after it was published. The next 37 years of her life and her significant later work get scant treatment, even though her ideas about intellectual capital, cities as economic engines, localized commerce, and ecology are now very much in vogue. *Jayne Merkel*

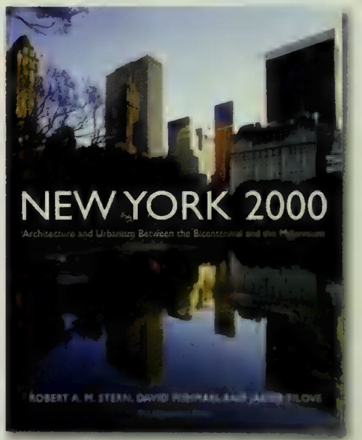
New York 2000: Architecture and Urbanism Between the Bicentennial and the Millennium, *by Robert A.M. Stern, David Fishman, and Jacob Tilove. New York: Monacelli Press, 2006, 1,520 pages, $100.*

After 20 years and help from a host of cowriters and researchers, Robert A.M. Stern's *New York* series is complete. It now spans the whole of the city's architectural history from the Civil War to the present in five hefty volumes, of which *New York 2000* is the biggest and most ambitious. Like its predecessors, it runs a mad dash through a generation of urban life and the city's new buildings, with the criticism that greeted them.

As with the series' previous volumes (1880, 1900, 1930, and 1960), an introduction sets the scene. The survey of buildings begins in Lower Manhattan, then drifts steadily up the island and beyond to the outer boroughs. A band of journalists acts as chorus in the metropolitan drama; where the preceding volumes had their Van Rensselaers and Mumfords, this one has the trio of Muschamp, Goldberger, and Huxtable.

Several problems are unique to the present volume. One is the glut of available information, despite omissions here on everything from subways to architectural exhibitions. The book also enters a crowded field of recent literature on New York history, and it doesn't always benefit by comparison. Stern's history lacks the depth of Edwin Burrows and Mike Wallace's *Gotham* or Kenneth Jackson's *Encyclopedia of New York City*.

Then there is the question of *New York 2000*'s objectivity. Stern, teamed with David Fishman and Jacob Tilove, writes here about his contemporaries, a delicate business in which casual judgments can seem like professional biases. What's more, *New York 2000*'s underlying story is New York's redemption after the decline chronicled in *New York 1960*. And while the improvement is unquestionable, no city is without its problems, and future readers may come to regard Stern's triumphalism as facile.


NEW YORK 2000
Architecture and Urbanism Between the Bicentennial and the Millennium
ROBERT A. M. STERN, DAVID FISHMAN AND JACOB TILOVE

But whatever the authors' prejudices, they are overshadowed by the quantity of the research and the ease of its prose. Reading *New York 2000* is a pleasure, and its creators have performed a public service. *Ian Volner*

Books

City of Collision: Jerusalem and the Principles of Conflict Urbanism, *edited by Philip Misselwitz and Tim Rieniets. New York: Birkhäuser, 2006, 384 pages, $50.*

Throughout history, Jerusalem has been a contested city. *City of Collision, Jerusalem and the Principles of Conflict Urbanism* demonstrates that today, as a result of eight years of particularly violent contest, that city is taking on particularly tragic and at times bizarre urban form.

The book as a project was supported by a consortium that includes the Berlin University of the Arts, Zurich's Institute of Urban Design, and Jerusalem's International Peace and Cooperation Centre and Bezalel Academy of Art and Design, plus several distinguished foundations. The book represents the collective efforts of over 37 authors, mostly Israeli and Palestinian, from a variety of disciplines and perspectives. Together they document, analyze, and try to make sense of Jerusalem's changing spatial configuration. Despite their different points of view, none applauds the new status quo imposed by the Israeli state.

City of Collision is dense with information. It begins by looking to the Ottoman era (1517–1917), a period of much greater social equity and peaceful relationships that cannot but impart feelings of loss and nostalgia. The book then analyzes Jerusalem through a series of chapters that combine dispassionate analysis and heartrending personal narratives.

Jerusalem today is not just the ancient historic city but a regional enclave that has annexed surrounding villages, suburbs, and territories into a sprawling entity gerrymandered by walls, fences, and barriers to create separate zones where people live unequal but parallel lives. This is nowhere better communicated than through the maps and charts that are perhaps the best and most original part of this book.

These images communicate, better than the text, the disturbing disparity and inequity that exists for the residents of Jerusalem. The maps, charts, and diagrams describe with cold objectivity subjects grouped into the categories of "Conflict and Urban Transformation," "Hosh [house] and Apartment," "Mobility and Immobility," "Fear and Assertion," "Growth and Decay." The bizarre formal reality of the separation is most apparent in the map entitled "Archipelago" where wall/fence/barriers follow the 1948–67 Israel-Jordan Armistice Line, twisting and looping to form a variety of tightly encircled enclaves isolating impoverished Palestinian urban areas from well-serviced Jewish ones. The result is an apartheidlike theory of planning.

It is hard to come away from *City of Collision* with any measure of optimism for the future of Jerusalem. There seems to be little promise for the Promised Land. However, the broader implications of *City of Collision* are more disturbing. With the terrorist attacks in New York, London, and Madrid making security a forceful element of urban planning worldwide, Jerusalem may be a harbinger of things to come.

John A. Loomis

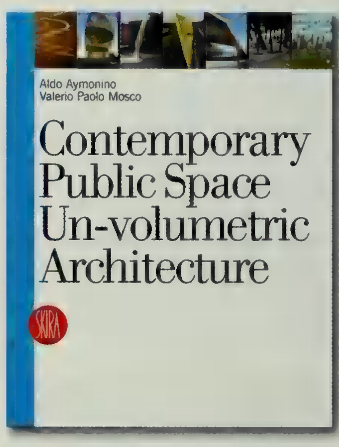
Contemporary Public Space: Un-volumetric Architecture, *edited by Aldo Aymonino and Valerio Paolo Mosco. Skira, 2006, 250 pages, $34.95.*

At the end of his introduction to *Contemporary Public Space: Un-volumetric Architecture*, Aldo Aymonino proclaims that architecture's "underlying ethical role [is] providing a social service." If you subscribe to the notion that designers serve society best by reinterpreting the function of public space with every technological advance or by imparting a scripted experience to users, then you will be satisfied with the images and essays that follow. If, however, you value public spaces where spontaneity flourishes and users enjoy the freedom to create their own experience, *Contemporary Public Space* will severely disappoint.

The book consists mainly of 100 project profiles, each typically given a two-page spread. For every project that performs as a usable space, such as Rio de Janeiro's Copacabana Promenade—a waterfront boulevard that successfully links the fabric of streets and buildings to the city's beaches—there are several instances of misguided hubris, typified by Wes Jones's risible proposal to elevate San Francisco's Union Square over a parking garage.

As you progress, *Contemporary Public Space* reads like an exercise in categorization. The authors assign the selected projects to 10 sections, each more artificial than the last. By the time you reach the technology section, which touches on the design of wind turbines and high-tension pylons, the connection to the supposed subject of the book has been completely severed.

Part of the problem lies with the term *unvolumetric architecture*, because it gives the authors license to include almost any structure; they proceed to make un-volumetric architecture far more central to the book than the study of public space. That is



fine if your goal is to advance intellectual concepts within a highly specialized network of theorists. But if architects are to provide a vital social service, they will have to engage a broader audience, especially when tackling a subject of such universal importance as public space.

Rather than investigating the topic at a theoretical remove, *Contemporary Public Space* could have plunged into the story of how designers, local governments, and the public are joining forces to create usable gathering places. If the authors had pursued such an objective, they might have profiled interventions such as Paris Plage, which temporarily transforms the Pompidou Expressway into an urban beach, or London's recent pedestrian improvements to Trafalgar Square. These projects, part of citywide efforts to improve the public realm, have tapped into a deep-seated hunger for comfortable, socially fulfilling, and active public spaces.

We would argue that the ethical role of architects is to collaborate with communities in satisfying this appetite. Judging by *Contemporary Public Space*, they have a long way to go.

Fred Kent and Ben Fried

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Top 150 Architecture Firms' 2006 revenues total $8 billion

Practice Matters

By Charles Linn, FAIA

Each year RECORD publishes the Top 150 Architecture Firms list, based on information collected by its sister publication, *Engineering News-Record*, for its *Top 500 Design Firms Sourcebook*. According to the latest survey, 2006 was a good year for architects, who reported a combined $8 billion in revenues. (Incidentally, there was a five-way tie for the 147th spot, so 151 are listed.) The 15 firms at the top of the list earned 37 percent of that, about $3 billion. To put those figures in context, it is helpful to know that architects' offices with more than 100 seats make up only 2 percent of all firms, and yet these firms place 34 percent of total billings, according to the most recent AIA Firm Survey.

The accompanying table lists the amount of revenue each firm reported from its domestic and international work, and provides a total for them. Because the list captures many firms that have sizable architecture practices but are also involved in engineering and contracting, the percentage of revenue the firms say was derived from architectural work only is noted in the table. This total includes revenue from interior architecture, and also revenue that is passed through to other design consultants.

Gensler holds the number one spot on this year's list, with total revenue of $500.2 million. AECOM Technologies held the top spot last year [RECORD, July 2006, page 42]; however, while AECOM does own architecture firms, the questionnaire submitted by the company did not indicate how much of its revenue was earned by these businesses, so it is not on this year's list.

Although publication of lists such as this often serve as a reminder that bigger is not always better, the cream of the crop must be doing something right. The AIA Firm Survey indicates that repeat business is the greatest source of new work, and these firms are steady earners—13 of last year's top 15 remain on the list this year.

Only 24 firms are cited below. You can find the complete table at the Practice Matters section of architecturalrecord.com. ■

HOW TO USE THIS TABLE

Companies are ranked according to revenue for architectural services performed in 2006 in $ millions. Firms that responded to *Engineering News-Record*'s annual Top Design Firms survey submitted these revenue figures. The McGraw-Hill Companies publishes both ARCHITECTURAL RECORD and *ENR*.

Key to how firms classify themselves:

A = Architect
AE = Architect-Engineer
AEC = Architect-Engineer-Contractor
EA = Engineer-Architect
Other combinations possible

To participate in the *ENR* survey, which serves as the basis for this ranking next year, contact Virgilio Mendoza at 212/904-6371 or virgilio_mendoza @mcgraw-hill.com.

ARCHITECTURE FIRMS RANKED ACCORDING TO 2006 REVENUE

Firms listed by 2006 architecture revenue as reported to *ENR* in its Top 500 Design Firms Survey	Type of firm	Total architectural revenue	Domestic architectural revenue	International architectural revenue	Percent of design revenue from architecture	Total design revenue
Gensler, San Francisco, Calif.	A	500.20	444.40	55.80	100%	500.20
URS, San Francisco, Calif.	EAC	420.00	348.00	72.00	12%	3574.70
HOK, St. Louis, Mo.	AE	372.64	252.32	120.32	78%	475.77
HKS., Dallas, Tex.	AE	309.15	285.82	23.33	100%	309.15
Perkins+Will, Atlanta, Ga.	A	268.30	235.40	32.90	100%	268.30
Skidmore, Owings & Merrill, New York City	AE	195.00	100.00	95.00	78%	251.20
HDR, Omaha, Neb.	AE	173.10	163.90	9.20	21%	812.50
RTKL Associates, Baltimore, Md.	AE	146.06	101.30	44.76	72%	203.80
Callison, Seattle, Wash.	A	129.50	99.00	30.50	100%	129.50
Perkins Eastman, New York City	A	122.00	111.00	11.00	100%	122.00
SmithGroup, Detroit, Mich.	AE	113.90	112.90	1.00	79%	143.90
Kohn Pedersen Fox Associates, New York City	A	109.00	31.00	78.00	100%	109.00
Cannon Design, Grand Island, N.Y.	AE	105.20	84.14	21.06	81%	130.35
NBBJ, Seattle, Wash.	A	100.46	74.57	25.89	70%	143.60
Leo A Daly, Omaha, Neb.	AE	100.32	96.32	4.00	70%	143.65
Heery International., Atlanta, Ga.	AE	99.30	99.30	0.00	74%	134.20
Zimmer Gunsul Frasca Partnership, Portland, Ore.	A	92.06	89.00	3.06	100%	92.06
KTGY Group, Irvine, Calif.	A	78.03	77.87	0.16	100%	78.03
Gresham, Smith and Partners, Nashville, Tenn.	AE	75.00	74.25	0.75	65%	114.94
Wimberly Allison Tong & Goo (WATG), Honolulu, Hawaii	AP	74.28	31.70	42.58	82%	91.07
HMC Architects, Ontario, Calif.	A	73.81	73.81	0.00	100%	73.81
Arquitectonica, Miami, Fla.	A	72.62	37.66	34.96	100%	72.62
Smallwood, Reynolds, Stewart, Stewart & Associates, Atlanta, Ga.	A	72.48	44.67	27.81	100%	72.48
Carter [illegible] Burgess, Fort Worth, Tex.	EA	71.80	69.40	2.40	16%	436.10

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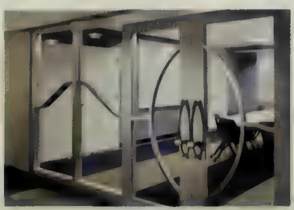

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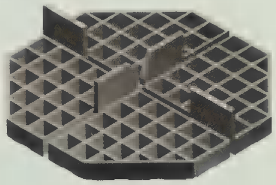

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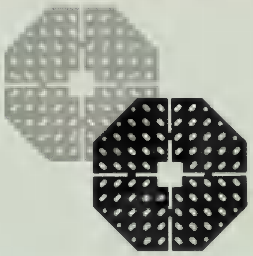

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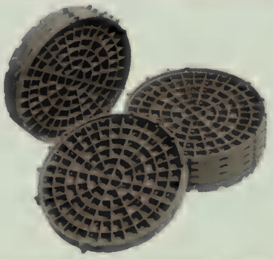

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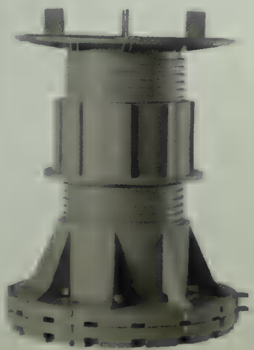

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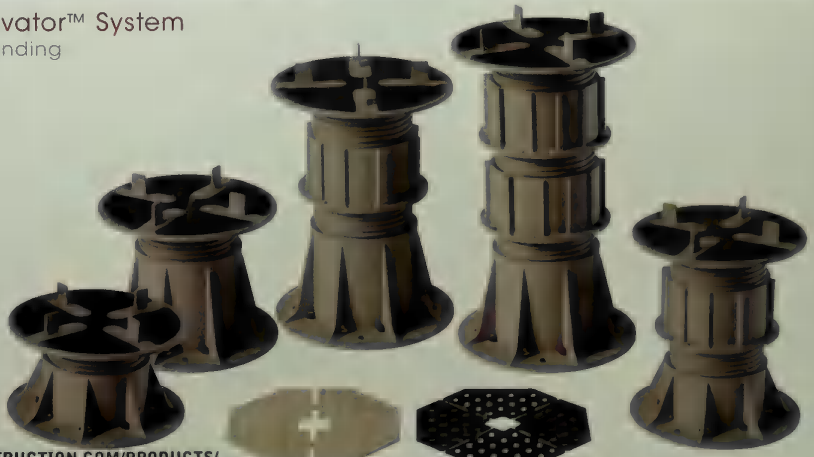

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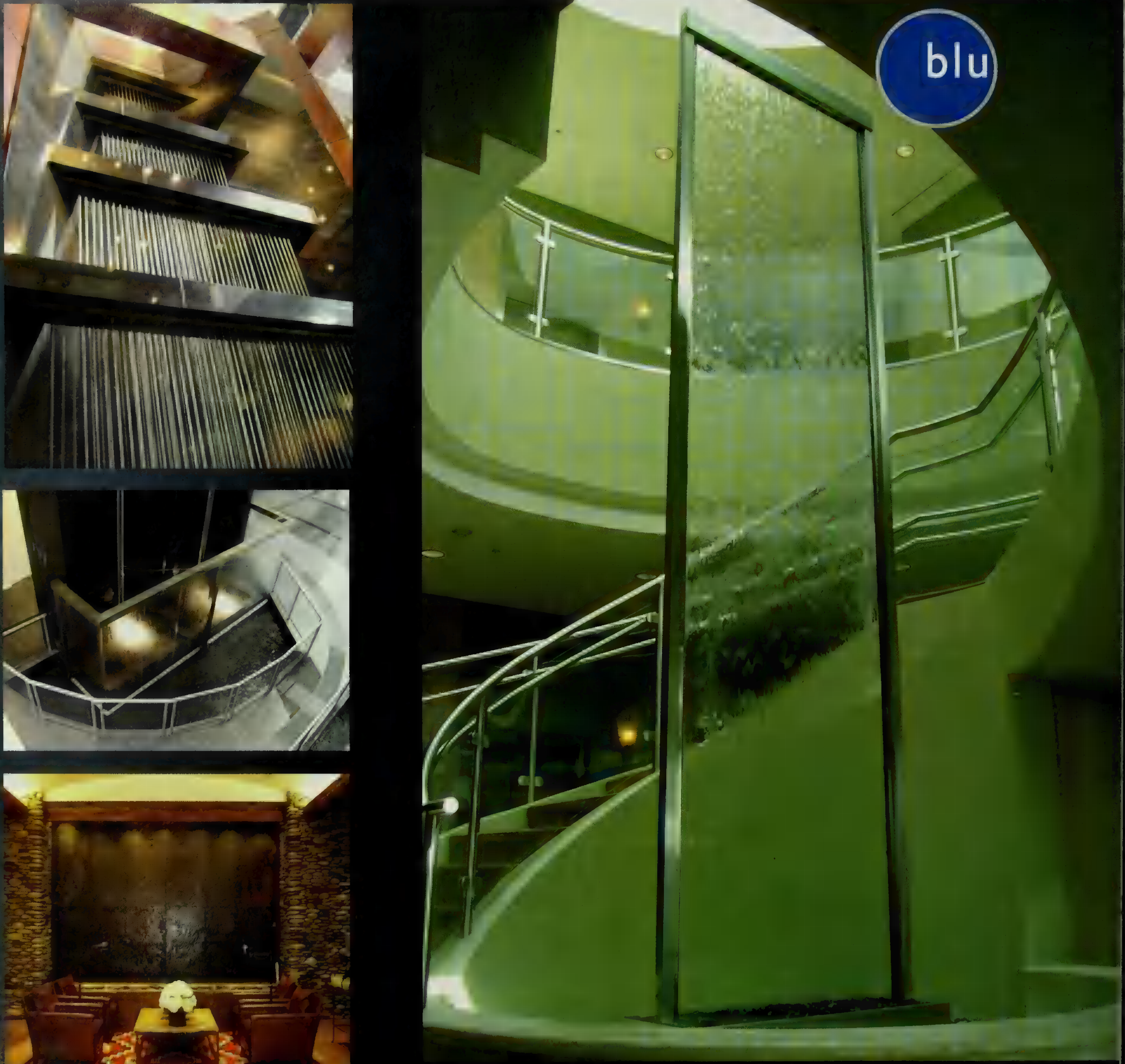

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Product View

Clockwise from left: Glacier Ice is a solid white translucent material; the Opale fixture from Ivalo Lighting demonstrates the design potential of Glacier Ice; Artic Ice will offer the same translucency, but with a particulate design.

By Rita Catinella Orrell

Translucent solid surfacing material comes to light

Two new translucent colors from DuPont Corian, Glacier Ice and Artic Ice, allow up to three times as much light to pass through than other Corian colors. The new materials were previewed at the AIA show held last month in San Antonio. Also on display at the show was Opale, a new lighting fixture from Ivalo Lighting that uses Glacier Ice for the body of the fixture. Designed by Ali Rahim and Hina Jamelle of Contemporary Architecture Practice in New York City [RECORD, Design Vanguard, January 2004, page 136], Opale is illuminated by a single 39-watt HID lamp. "[Corian] employed a vacuum-form technique which allows the overall form to be continuous and read as completely seamless," says Jamelle. "They were also fantastic in developing new techniques for the tooling of grooved thicknesses in a complex shape." Glacier Ice, a solid, translucent color, will be available this Summer. Artic Ice, made with white particulates, will be available on a limited basis in the fall. DuPont Corian, Wilmington, Del. www.corian.com **CIRCLE 200**

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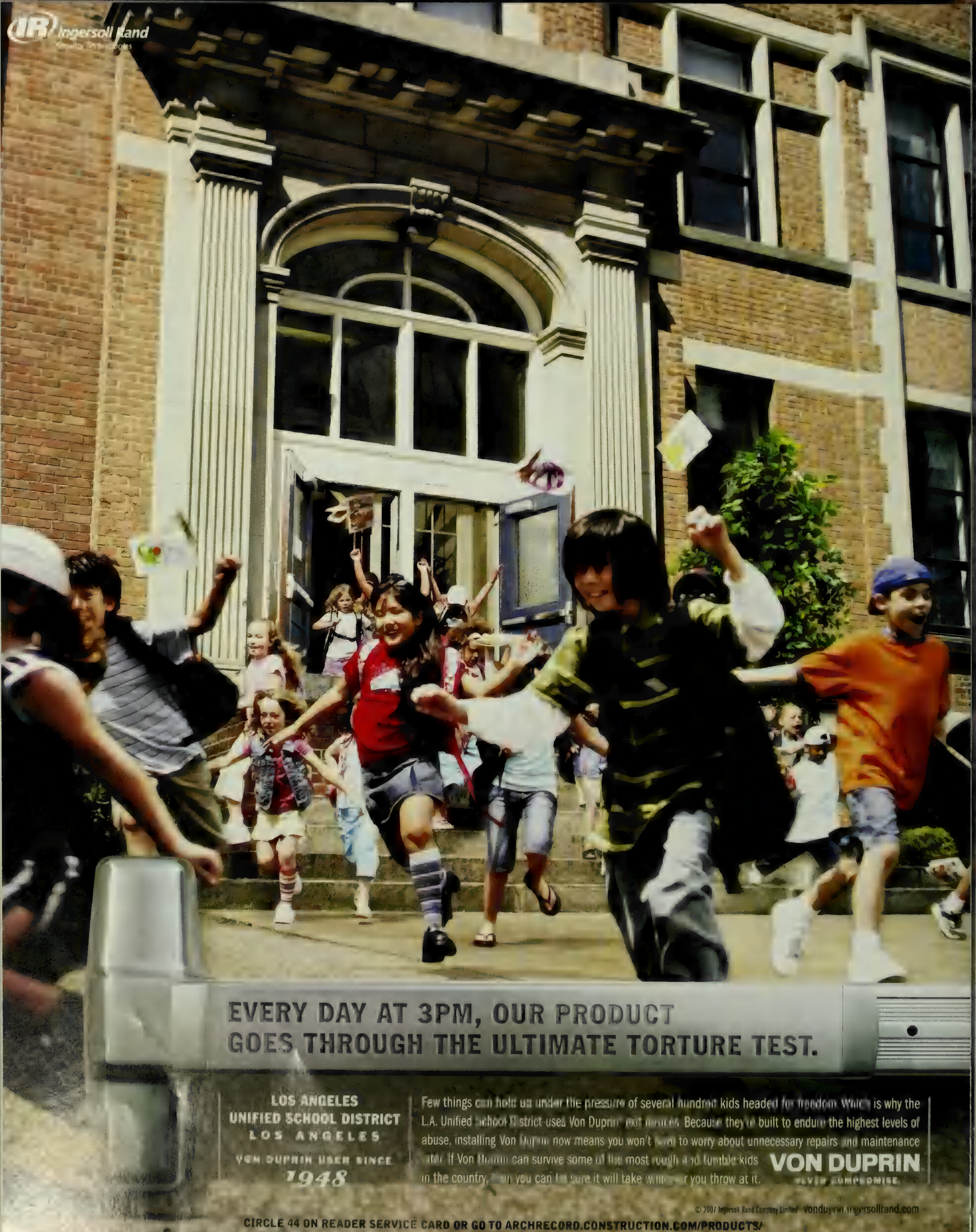

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Trade Show Review Valencia • Cevisama

Tiles rule at Cevisama, which celebrated its 25th year in 2007. Bringing together more than 1,000 exhibitors, the Valencia trade show displayed dimension-defying ceramics—from high-tech decorative to metal and textile look-alikes. These days with tile, anything is possible. *Jane F. Kolleeny*

1 Metallica Apavisa's Inox Collection of tiles, featuring a porcelain with the appearance of steel (but without its material limitations) is mono calibrated and stable against changes in temperature. Available in silver, chrome, copper, and gold (shown), in 23.6" square and 11.8" x 23.6". San Juan de Moro, Spain. www.apavisa.com **CIRCLE 201**

2 Fanciful facades Emotile by Ceracasa leads the way in mural-like imagery. Displaying reproduced photographs using ink-jet technology, these large-format tiles enliven functional facades. Tiles come 19.3" square, 12.4" x 25", and 19.3" x 38.7" rectified (matte, antislip, or satin finishes), 11.8" x 24.5" rectified, and 15.5"-square rectified. Surfaces, Miami. www.ceracasa.com **CIRCLE 202**

3 The look of nature Using IPlus digital technology, Inalco applies superb craftsmanship to create tiles reproducing the quality of other materials, such as the stonelike Cuarcita, available in formats from 17.7" x 35.9" to 17.7" square, with borders and mesh-mounted wall tiles in three colors: Crema, Nuez, and Piedra. Intertile Corporation, Hialeah, Fla. www.inalco.es **CIRCLE 203**

4 Tiny geometries Tau's new natural and polished Carbono Series, designed in 23.6" square, is modeled after high-tech materials of the aeronautical industry. Carbon fibers, five times thinner than a human hair, mold together to create a high-strength polymer-textured metallic enamel product. Castellon, Spain. www.tauceramic.com **CIRCLE 204**

5 Tiles with grooves Tres Estilos presents its spin on relief and textured wall tile with its Ecology Dimensions Collection. Suitable for exteriors and commercial spaces, tiles come in a 12"-square size. Tres Estilos, San Juan de Moro, Spain. www.tresestilos.com **CIRCLE 205**

6 Fabulous fabrications Gaya presents the Lynx Series of floor tiles (shown) with the luxurious look of leather. And from the Fussion Collection comes a variety of wall tiles measuring 12.5" x 18", with decorative listellos in sizes from ½" x 12 ½" to 2" x 12 ½", available in four colors. Castellon, Spain. www.gaya.es **CIRCLE 206**

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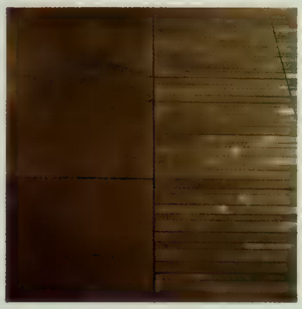

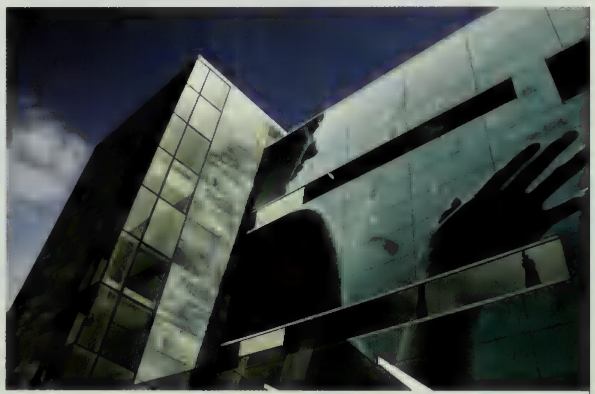

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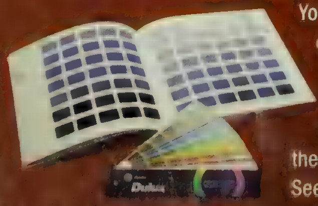

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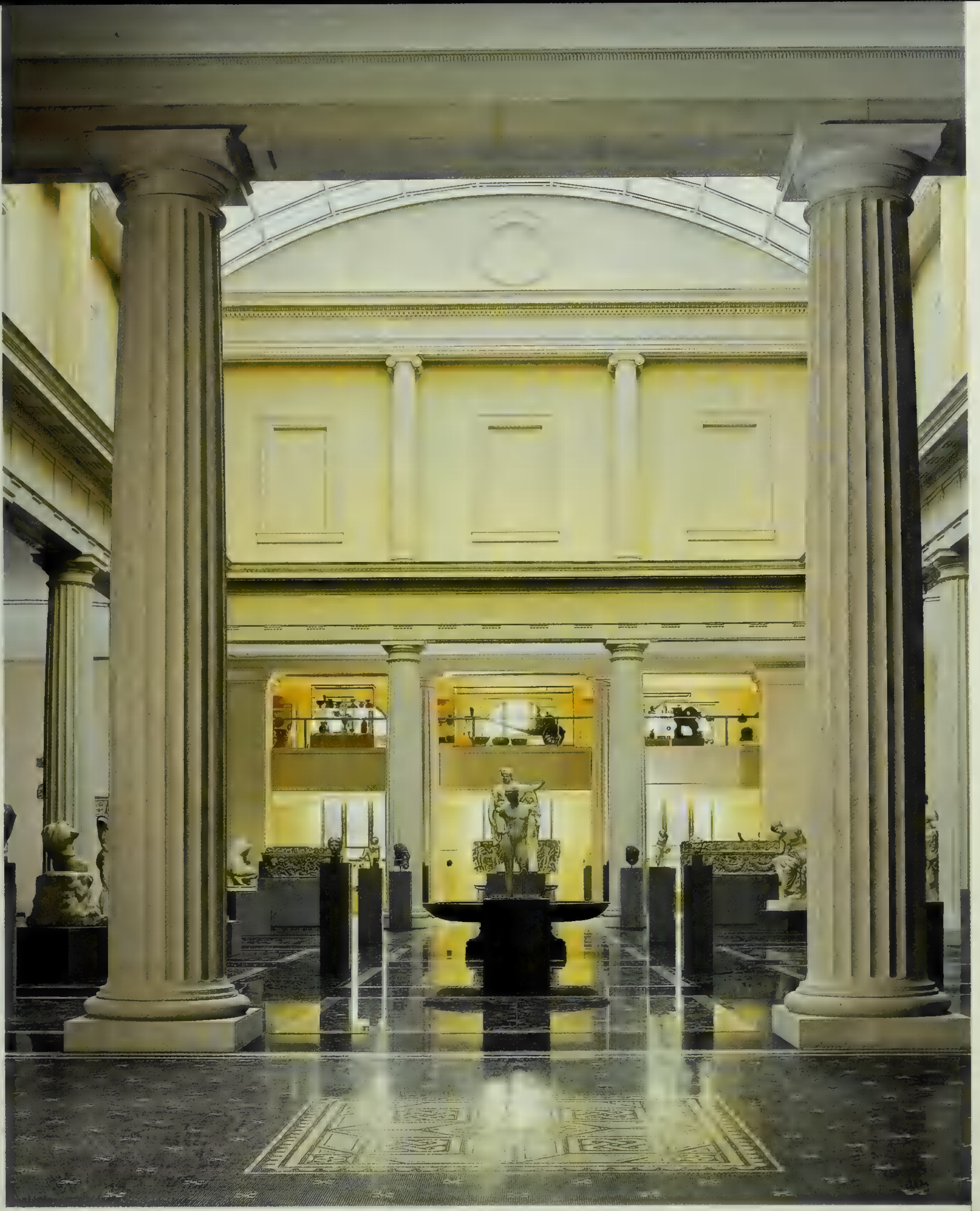
Snapshot

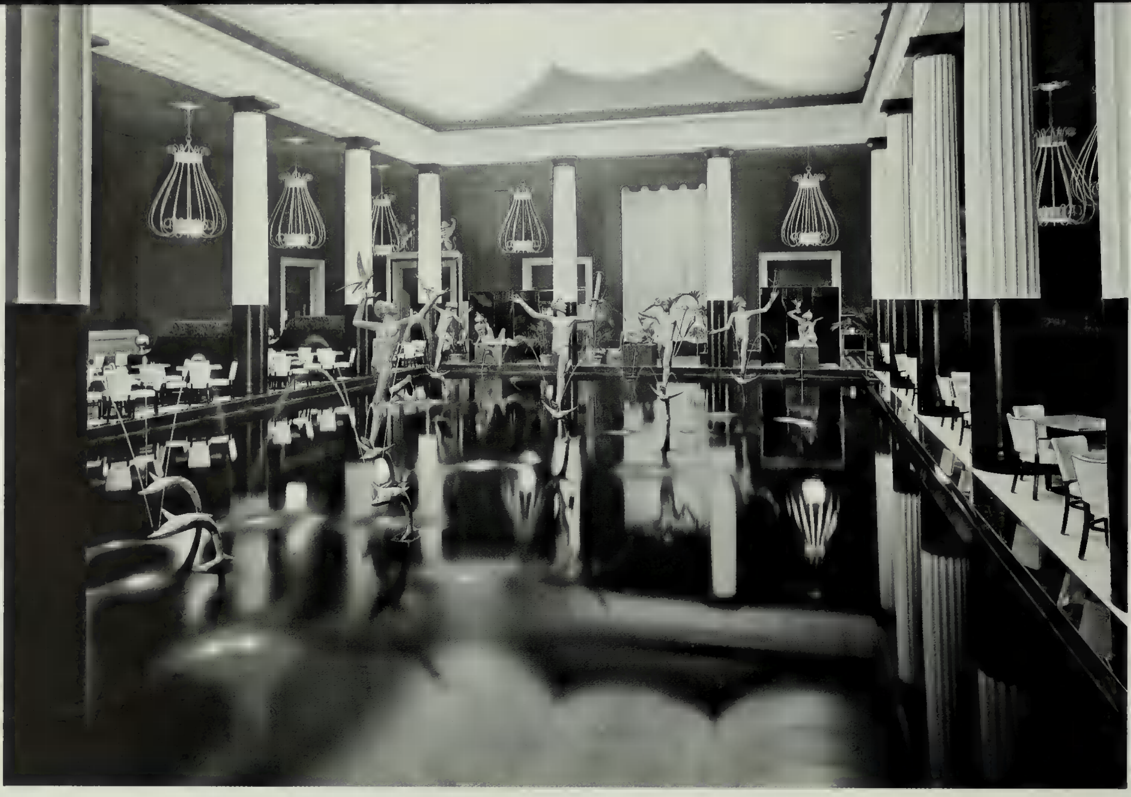


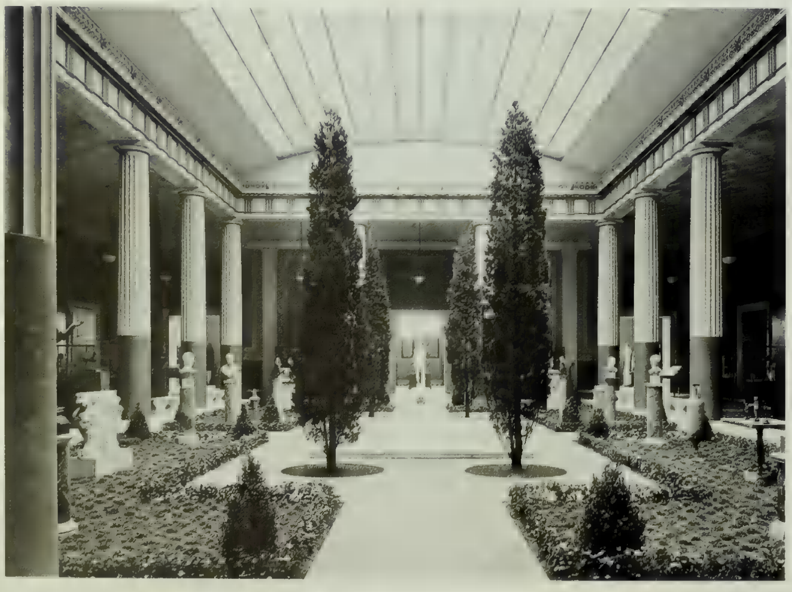
Seeing the light in the Met's newest galleries

By Beth Broome

Designed by McKim, Mead and White, the Metropolitan Museum of Art's original Greek and Roman galleries, which opened in New York in 1926, centered around a single-story peristyle court flanked by plaster-cast Doric columns. Based on a Pompeian court, the space, illuminated by a frosted-glass skylight, displayed statuary and other works among plantings and gravel paths.

In 1949, the Met's then director, Francis Henry Taylor, hoping to modernize the museum, decided to replace the galleries with a stylish new restaurant and relocate executive offices to a mezzanine with coveted views onto Fifth Avenue and Central Park. He brought in society decorator Dorothy Draper, who transformed the central court into a reflecting pool, with a fanciful bronze *Fountain of the Muses*, by Swedish sculptor Carl Milles. Enormous onion-shaped chandeliers illuminated the tables, and swathes of silk concealed the skylight, completing the café's image as a gracious, hat-and-white-glove lunch spot.





The atrium in 1926, posing as a scene from Classical antiquity (above), and as the Draper dining room in 1954 (top). In its current role, it is the new Leon Levy and Shelby White Court (opposite).

Over the years, the pool was drained and used for seating, and the formal restaurant, which in its time became something of an institution, devolved into a popular cafeteria (with a small section of the dining room retained). Even so, devotees mourned the restaurant's final closing in 2003, as a 15-year, $220 million reconstruction project to resurrect the Greek and Roman wing gained steam.

Now complete, the galleries offer a resplendent space for viewing the Met's immense collection, including an additional 5,300 works, which have literally been brought out into the light. To re-create the galleries, the museum installed a new heavy-duty steel framework into the basement area. They relocated offices around the upper perimeter of the courtyard, and moved the cafeteria to the lower level in a different wing. Kevin Roche, the Met's longtime architect, also notes that unlike its predecessor, the new central court's aesthetic, while still Roman Classical, draws on a precise period from the era, that of the emperor Augustus Caesar. The architects endeavored to achieve a more accurate interpretation of the period's style, says Jeffrey Daly, the museum's head designer, in contrast to McKim, Mead and White, who merely sought to evoke rather than strictly adhere to the architectural hallmarks of the age.

In this vein, the peristyle was extended to two stories with the idea of creating a grand terminus befitting an imperial palace and the magnificent procession through the galleries. A green and red marble floor of bold circles and squares (laid without grouting), a nod to the Pantheon, also takes its cue from palaces of the time, while the original mosaic around the court's perimeter was retained. Limestone columns replace the plaster ones, and a black marble fountain graces the court's center. But what moves the visitor is the copious daylight flooding through a clear-glass skylight and through the court's southern wall, which the architects opened up to expose the massive park-facing windows.

Over the course of a day, as the sun moves across the sky, it casts dramatic spotlights on the various statues on display, many of which were, after all, created to be seen *en plein air*. The effect is so potent that even the most dedicated Draper fans admit that once they saw the light they, too, became converts to the Met's new galleries. ■

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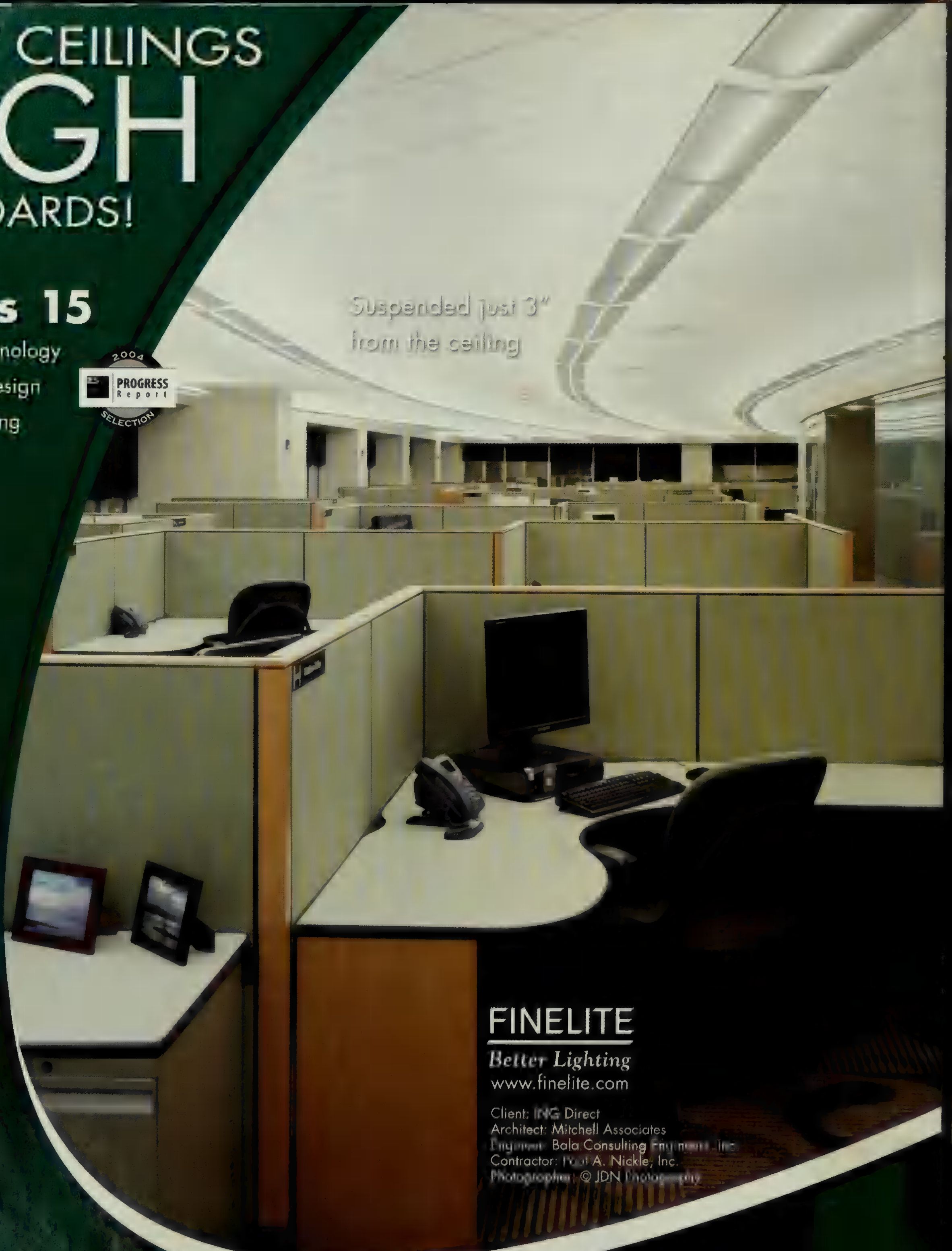

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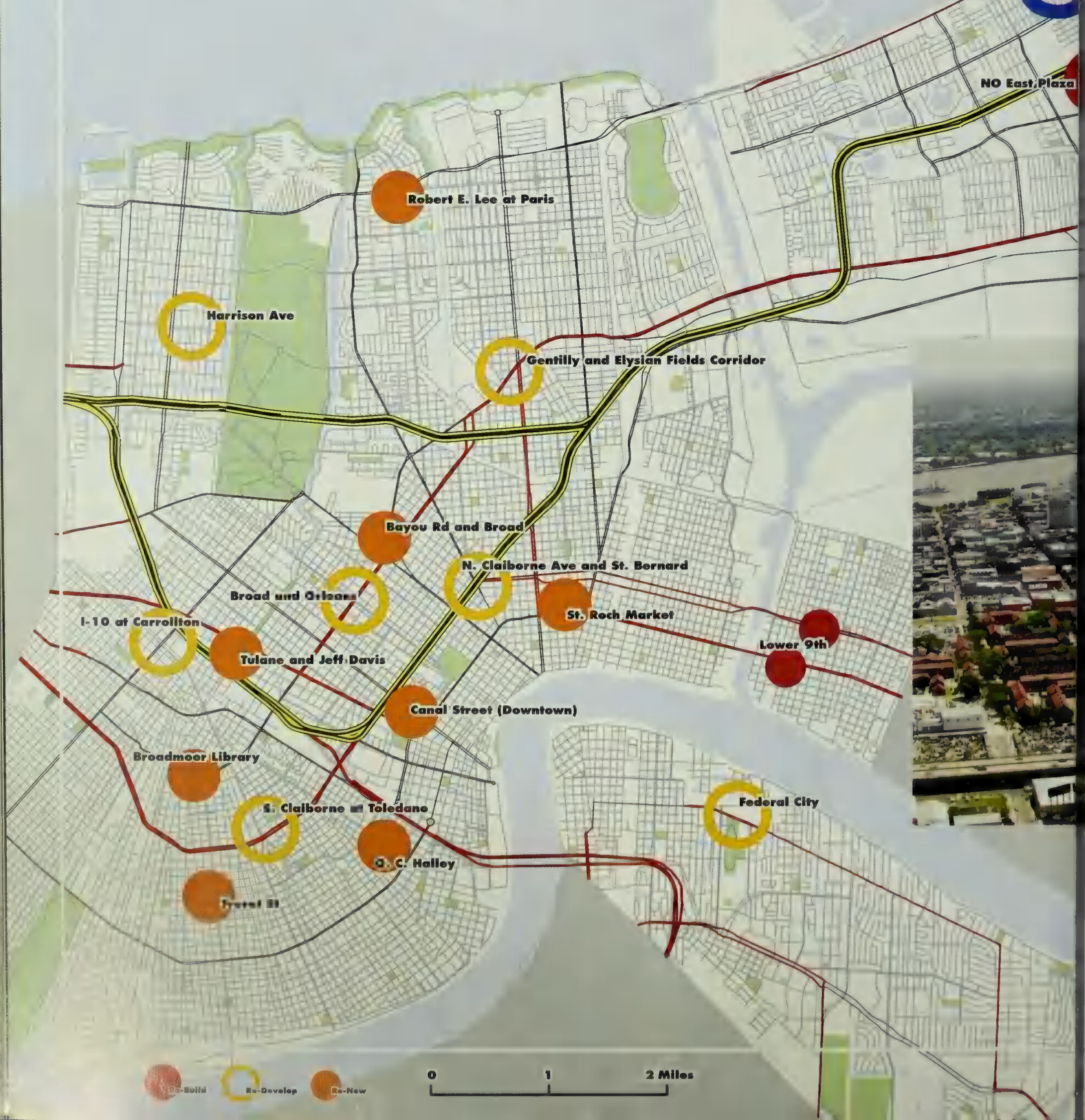
Planners have identified 17 clusters for development (map). Developers and preservationists are fighting over the Iberville housing project (foreground in photo).

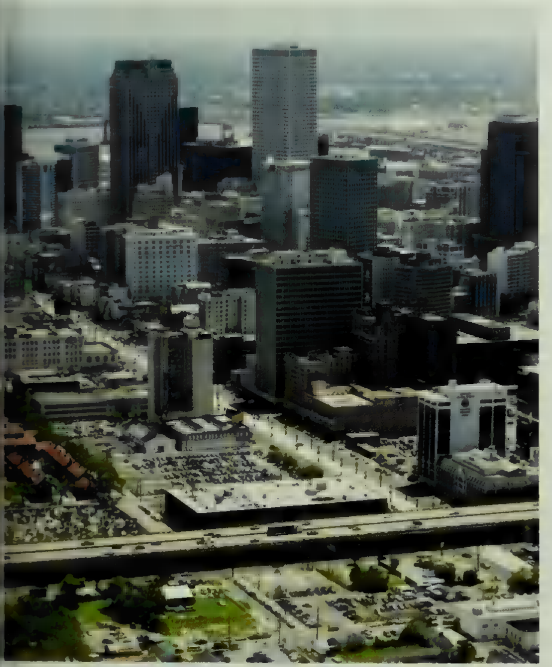
Remaking



New Orleans, without losing its past

By Shawn Kennedy

Even before Katrina's deathly waters receded, New Orleanians knew their cherished city would never be the same. If there was a silver lining amid the misery of lost lives and ruined communities, it was the chance to remake the Crescent City into a better version of its soulful and sultry itself.



Planners, politicians, and citizens have been fighting over the Crescent City's future for two years. Will a new plan and disaster-recovery chief hone a workable vision that builds what's needed while it preserves what's beloved?

But what should the new New Orleans look like? Should submerged neighborhoods be abandoned? Should all homes in flood zones wear stilts? Should the city draw itself up to high ground and get on with life as a much smaller place?

There was no lack of advisers, from planners to architects to developers to politicians and their redevelopment gurus. Finally, after more than 20 months of well-publicized stumbles and false starts, including competing sets of recovery schemes, New Orleans seems to be moving forward, albeit in the face of huge challenges.

The Unified New Orleans Plan (UNOP) is the road map and blueprint for rebuilding. The long-term plan carries a $14 billion price tag and was created by ordinary citizens working with planning professionals after-hours and on weekends in churches, schools, and community centers. It replaces previous uncompleted schemes that fell by the wayside for lack of funding or political support. UNOP includes big ideas to rebuild the entire city—infrastructure improvements, public schools, housing, and flood protection—as well as custom projects like biking paths and gardens that benefit particular neighborhoods. One ambitious proposal, for example, would tear down a stretch of elevated highway that 50 years ago sliced through an African-American enclave, mowing down a boulevard of glorious oaks.

When it was released in February, UNOP took more hits than a piñata. The heaviest stick was held by the Bureau for Better Government, a local watchdog group that pronounced UNOP little more than a wish list that ducked hard questions of how and where to rebuild.

Steven Villavaso, the urban planner whose firm, Villavaso & Partners, led the team of professionals that wove together more than a dozen community designs into UNOP, defends the plan, saying, "UNOP is not the end, it's the beginning. It's flexible. It was designed to accept the changes and improvements that will inevitably come. What validates UNOP is that it carries the weight of broad-based, grass-roots citizen participation."

UNOP still needs to pass muster with the city planning commission, the city council, and the mayor, but adoption appears

Shawn Kennedy is a former staff reporter for The New York Times *and now writes as a freelancer in New Orleans.*

likely by early summer. Most public officials support the plan, and the Louisiana Recovery Authority is waiting on the adoption of UNOP to start the flow of $300 million in federal recovery funds.

UNOP was given further credibility in March when the city's new disaster-recovery chief, Edward Blakely, unveiled a $1.1 billion phase-one investment scheme, the first step in what is projected to be a 10-to-15-year effort. This scheme, which took a lot from the UNOP plan, proposes using 40 percent of the public dollars as leverage to draw investors, developers, and residents to 17 targeted clusters throughout the city, and about 60 percent for citywide projects. While all of the money is not in hand, the plan includes potential sources and strategies for raising it.

Blakely, a Californian who was brought to the city with great fanfare by Mayor Ray Nagin, has emerged as the go-to guy for disaster recovery. He devised response plans for Oakland, California, after the city was hit first by the Loma Prieta earthquake in 1989 and then a devastating fire in 1991. Blakely's urban-planning expertise has been sought by foreign local and regional governments in countries ranging from New Zealand to Vietnam.

Steven Bingler, an architect and planner, whose firm, Concordia, coordinated the neighborhood planning process that resulted in the UNOP document, believes this pedestrian-oriented cluster concept is the best strategy for success. "It's a sustainable model where people can walk to most of the places they need to go," says Bingler. "It's the way communities used to be before we started driving everywhere. Think of it as using the French Quarter—a self-sustained community—as the DNA for rebuilding other neighborhoods."

Most of these target clusters are in areas that escaped the worst flooding. But two communities, the 9th Ward and East New Orleans, both nearly wiped away by the surge, made the cut. Their inclusion suggests that the city's new map will not have a smaller footprint—at least not by design.

THE TARGET CLUSTERS HAVE BROUGHT A FLICKER OF HOPE TO A CITY HUNGRY FOR LEADERSHIP, DIRECTION, AND MOMENTUM.

The targeted areas, each about a half-mile in diameter, are historic centers of commerce for their neighborhoods. They were selected, in part, because they already have anchors like commercial

Blakely applies management acumen to help New Orleans back on its feet

Clichéd as it sounds, Edward J. Blakely's vision for New Orleans took shape on the back of a napkin during an informal meeting with Mayor Ray Nagin in December 2006. "I sketched out how I would structure a recovery," Blakely recalls. "He said, 'That looks good. When can you start?' " Realizing that Nagin was serious, Blakely returned to the city just weeks later to become executive director of its Office of Recovery Management. "I had not intended to come, but I knew I had certain skills that would be helpful."

Saying that Blakely has "certain skills" is an understatement. An urban planner and academic, he boasts an extensive résumé that includes assisting Oakland, California, recover from an earthquake in 1989 and a massive wildfire in 1991, as well as designing master plans for cities throughout Asia. He currently serves as director of the Planning Research Centre at the University of Sydney, in Australia, where he also chairs the Urban and Regional Planning program.

Tapping Blakely was widely viewed as New Orleans's best hope for a successful recovery—most press accounts, in fact, lauded his "realistic" view of what should happen next. "I made the problems easy to understand, made the start points clear, and assigned dollars to those start points that made sense," Blakely explains. "That's the thing you would do in a business. I don't think people had thought of doing things that way, but clearly that's my expertise."

Blakely, 68, holds a doctorate in both management and education from the University of California at Los Angeles, as well as master's degrees in management and development. He would have pursued a degree in urban studies, Blakely says, but the discipline was only just getting started when he was in school during the 1950s and '60s.

In New Orleans, Blakely likens his work to rebuilding European cities destroyed during World War II. "That analogy is more appropriate because most natural disasters affect only a part of a city. Even fires are mostly contained. But here everything collapsed."

And yet several factors make New Orleans's recovery different from anything else. Blakely cites the city's endemic poverty and troubled history of race relations—and something he labels a "mendicants" mentality. "For the past 19 months, there has been an attitude that we need to pay enough deference to Washington to get the resources we need for recovery. My attitude is we need to move on and they should join us."

To this end, shortly after joining Nagin's staff in January, Blakely hastily finished the Unified New Orleans Plan, which had been initiated only months before, and released it. He hopes the city will show demonstrable progress toward its goals by September. It's a short timeframe, but Blakely notes that his initial contract lasts just one year.

"I don't think anybody here wants me to be aspiring to do something in the future of New Orleans," Blakely observes. "They want me to get the place in good shape and then sail off." *James Murdock*

Plans call for renovating Canal Street's old theaters (above) as the core of a new entertainment district. Modern buildings such as the old Texaco tower (right) are also being restored.

and retail strips or shopping centers that planners hope will appeal to entrepreneurs, developers, and investors.

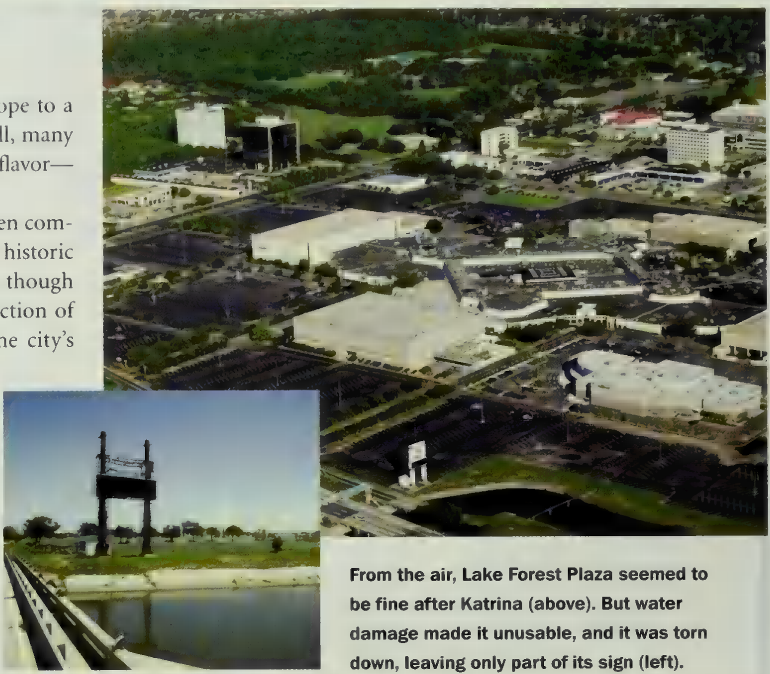
In one target area, in New Orleans East around New Orleans East Plaza, the assistance will focus on rebuilding the heavily damaged commercial corridor there. In another, along Harrison Avenue in the Lakeview neighborhood, not as damaged as New Orleans East, the assistance will support rebuilding that has already started. St. Roch, a historic neighborhood near the Mississippi River where flooding was minimal, represents a third category of target zones. St. Roch's commercial strip, where many mom-and-pop businesses have reopened, will get help to refresh and broaden the commercial and retail base there.

Robert Tannen, a New Orleans urban planner, sees the risk and the rationale in such a strategy. "The private market is going to deal with the low-risk neighborhoods, so I think they chose to put emphasis on the neighborhoods where private investment isn't so certain. But until the Corps [Army Corps of Engineers] and the state can demonstrate that there is protection to all neighborhoods with gates, levees, and coastal restoration, those areas are still at risk." While the Army Corps of Engineers had repaired and strengthened the levees to pre-Katrina condition by last June, the task of providing additional security is ongoing, with the ultimate goal of providing 100-year protection for the system by 2010. "The Corps is preparing for the 2007 hurricane season by focusing on improvements that will significantly reduce risks for critical areas," says John Meadon, deputy director of Task Force Hope. "This includes increasing levels of protection at the three outfall canals. The temporary floodgates will prevent storm surge from entering the canals, providing more effective storm and flood managements. The Corps is continually increasing pumping capacity at the outfall canals."

These target clusters have brought a flicker of hope to a city hungry for leadership, direction, and momentum. Still, many fear that in the rush to rebuild, much of the city's authentic flavor—in fact, its very soul—could be lost.

There is a lot at stake. New Orleans is ancient when compared to other American cities. A remarkable amount of its historic fabric has survived since the city's birth in the early 1700s, though much of it is in a state of decrepitude. More than a collection of homes and institutions built by the high and mighty, the city's architectural heritage includes entire neighborhoods where generations of middle- and working-class families—black, white, and mixed-race—lived and worked. It seems that nearly every block in the central city, no matter how highly decorated or humble, has a story to tell.

But even before Katrina, the city was adrift. According to the Census Bureau, nearly 30 percent of residents lived in poverty, and the city had a higher unemployment rate and lower rate of home-ownership than the national average. Starting in the 1960s with the desegregation of public schools and ending with the bust



From the air, Lake Forest Plaza seemed to be fine after Katrina (above). But water damage made it unusable, and it was torn down, leaving only part of its sign (left).

Cummings wants architecture to fuel economic rebound

New Orleans native Sean Cummings wants his city to shake off what he labels a case of provincialism. "We were historically a magnet for people from different parts of the world, whether it was the Spanish and the French or the master craftsmen of West Africa," he explains. "But in the past 80 years, we've become more insular—to our detriment."

Cummings is in a position to help broaden the city's perspective. The 42-year-old is executive director of the New Orleans Building Corporation (NOBC), which is charged with developing municipally owned real estate, and president of a private development company called Ekistics. In both capacities, he's pursuing innovative, contemporary design.

"It's an incredibly bad idea to attempt some sort of faux architecture that mimics history," Cummings says. "*Time* and *place* are the two key words. We should embrace work that's of this time and makes use of today's materials and technologies, but still very skillfully reflects this place."

The Rice Mill Lofts project (below two) is a good example of Cummings's philosophy. Working with Wayne Troyer Architect, Ekistics is converting an abandoned mill into condominiums.

With features such as a giant wind turbine, the building aims for LEED Gold certification.

Despite his preference for forward-looking work, Cummings says that he's unconcerned about so-called "Disneyfication" as New Orleans rebuilds. His worry is far more serious: the shaky economy. "Without job creation and a magnet for people to move here, the city will become even more insular than it was before."

Cummings, who holds a bachelor's degree in urban studies from Brown University, believes that New Orleans should focus on its strengths, such as music and food, and seek cultural and financial partners to capitalize on them. To this end, he is negotiating with Johnson & Wales University to open a culinary school. It would be part of the New Orleans World Trade Center, a massive building whose makeover into a hotel and cultural venue is being designed by Frederic Schwartz Architects and The Rockwell Group.

Architecture is a key ingredient for New Orleans's economic success, Cummings adds. The master plan RFQ for NOBC's redevelopment of a 4.5-mile stretch along the Mississippi River downtown attracted the likes of Zaha Hadid and Daniel Libeskind. The winning team, a collaboration led by Enrique Norton, Chan Krieger Sieniewicz, Hargreaves Associates, and Eskew+Dumez+Ripple, will unveil a scheme of parks and museums on June 30. "We want to bring in the single greatest concentration of design talent here," Cummings says. "Let's get some fresh thinking in New Orleans." *J.M.*

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Gay sees preservation as the key to a healthy future for New Orleans

During the summer of 2004, one year before Hurricane Katrina, Patricia Gay testified at public hearings in support of St. Thomas residents. This New Orleans neighborhood, full of architecturally significant 1930s-vintage houses, was concerned that a proposed Wal-Mart store would alter its character.

"It seems like a lifetime away," says Gay, executive director of the Preservation Resource Center of New Orleans (PRC). And yet some things never change. At the same time that it was battling big-box retailers, PRC was fighting teardowns. The group still wages this fight, only now entire neighborhoods are at risk of being bulldozed. "Whether it's boom or bust, there's always pressure to demolish historic buildings," Gay observes.

Although the magnitude of New Orleans's preservation challenges seems daunting, PRC boasts a handful of recent success stories. Gay credits them both to grassroots neighborhood activists and assistance from the National Trust for Historic Preservation. But she admits that PRC laid groundwork long before Katrina. In the Holy Cross neighborhood, for instance, it was working with community organizers to purchase and restore two blighted historic houses. Unlike other parts of the Ninth Ward, Holy Cross sits on higher ground and fared well during flooding—so PRC was able to complete work on the houses and sell them. It has since bought two more and is repeating the process.

Gay, 64, helped found PRC in 1974 and has headed it since 1980. Whether it is renovating properties or distributing buckets and cleaning supplies, the group acts as a true community resource for preservation. It also raises awareness with events such as "Look and Believe" tours of rebuilt houses (below right)—providing evidence of success, she says, for former New Orleans residents who are reluctant to return.

A native of Baton Rouge, Louisiana, Gay became interested in preservation after seeing what 1960s urban renewal did to her city—and reading Jane Jacobs. "If you care about cities, which is really my passion, saving your historic built environment is how you do it," she says.

This message is particularly key right now, Gay adds, as homeowners face tough decisions about whether or not to rebuild. "Many of the older houses survived the storm very well, so we should treasure them. It's like survival of the fittest. When you want to rebuild a population you don't start by tearing down what you already have." *J.M.*

---

of the gas and oil industries in the early 1990s, New Orleans witnessed a population retreat from which it never recovered. Between 1960 and 2000, the city lost nearly a third of its residents. Historic neighborhoods in the central city were hurt the most by this exodus.

But for the preservation movement, the city's economic decline would have taken a greater toll. Starting in the 1970s, nonprofit organizations like the Preservation Resource Center successfully campaigned to have the city's humbler streetscapes recognized as architectural and historic treasures worthy of protection. Today there are 16 protected historic districts, covering more than half of the city.

Walter Gallas, director of the field office for the National Trust for Historic Preservation, says a huge challenge in keeping the city from losing more of its history to post-Katrina neglect is the desire of many residents and public officials to see storm-damaged buildings bulldozed or transferred to those who would repair them. "The laws are in place," says Gallas, "it's a matter of enforcement on the local and federal level. Properties tagged for demolition are supposed to be reviewed, and that doesn't always happen."

In the Holy Cross neighborhood, the Preservation Resource Center restored a classic shotgun house (above left). In the Lower Garden District, new market-rate housing is being built (left).

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The city's landmark protection laws say structures or edifices within historic districts can't be demolished, altered, moved, or restored without a certificate of appropriateness. Moreover, a federal statute says that if a federal agency is involved in the undertaking—as is often the case in post-Katrina New Orleans—a public review is required before structures listed on the National Register of Historic Places or in historic districts can be demolished. The law applies even in cases where the city believes the buildings may be in imminent threat of collapse or are potential hazards to the community.

If salvation for the city's historic streetscapes hinges on the success of the rebuilding plan, no single entity is more pivotal to the rebirth than the New Orleans Redevelopment Authority (NORA). Long in charge of recycling abandoned or tax-delinquent buildings throughout the city before the storm, NORA lacked the teeth—legal and financial—to make much of a difference on the blighted landscape. But last spring the state passed legislation to expand NORA's powers that increased its board from seven to 11 members, gave the agency bonding authority, and allowed it to use new market tax credits.

With fresh leadership and more legal and administrative clout, NORA will serve as the city's land bank. Its portfolio has or will include tens of thousands of blighted and or tax-delinquent properties. In addition, as homeowners opt to sell storm-damaged homes to the state recovery authority—one form of reparation in the Road Home program (the $7.5 billion federally funded initiative that provides up to $150,000 in grants for Louisiana homeowners to rebuild or sell their homes to the state)—the agency will take those houses, too. "Our job is to return these buildings to commerce," says Joseph Williams, a former investment banker who took over NORA in January. "But we are well aware that the mandate comes with a respect for the historic value of many structures."

In the Lower Ninth Ward, many houses have been torn down or left abandoned, while one new house is going up (top). One of the target clusters includes Freret Street (above), in part because a hospital is nearby.

Right now, Williams has more on (continued on page 226)

Bingler wants citizens to power the planning and rebuilding effort

When Steven Bingler, AIA, envisions the future of New Orleans, he sees a city composed of strong neighborhoods that feature places to educate children, provide local health care, and accommodate recreational and cultural activities. For Bingler, these functions are indivisible—and public school buildings can contain them all. A healthy community, he explains, is like a human body in that it needs all its organs to function properly. It's only logical to house everything under one roof.

If this vision sounds slightly hippie-dippy, communities from Providence, Rhode Island, to Liberian villages in Africa have bought into it. So has New Orleans. Bingler's planning firm, Concordia, began working with Mayor Ray Nagin in 2004 to reenvision the city's troubled school system. Nagin was interested in strengthening neighborhoods and in the financial savings from combining municipal construction projects.

Hurricane Katrina and the school district's ongoing money problems interrupted the effort—but Concordia was a logical interim choice to coordinate citizens' input for the Unified New Orleans Plan (UNOP). Finished by Edward Blakely, it calls for the formation of 17 redevelopment districts throughout the city. At the heart of each is a school. "In New Orleans right now, we've got to rebuild the whole city, but that means you don't have to undo a lot of stuff," Bingler says. "If we think about it systemically, and think about it as a collection of neighborhoods, not only does that meet the challenge of how the city grows back, it also supports this massive community engagement and empowerment process that has emerged post-Katrina."

Encouraging community empowerment, observes the 59-year-old, has been his lifelong project. A few years after receiving his B.Arch. degree from the University of Virginia in 1972, he spent a summer at Paolo Soleri's Arcosanti experiment. "I wanted to study with Soleri, not because of Soleri, but because of what Arcosanti was evolving into, which was a community," Bingler says. "It really did work as a collection of people with a common purpose." Bingler now sees renewed evidence of citizen-led planning in groups such as America*Speaks*. "My hope is that people keep building and testing this community-based planning model." *J.M.*

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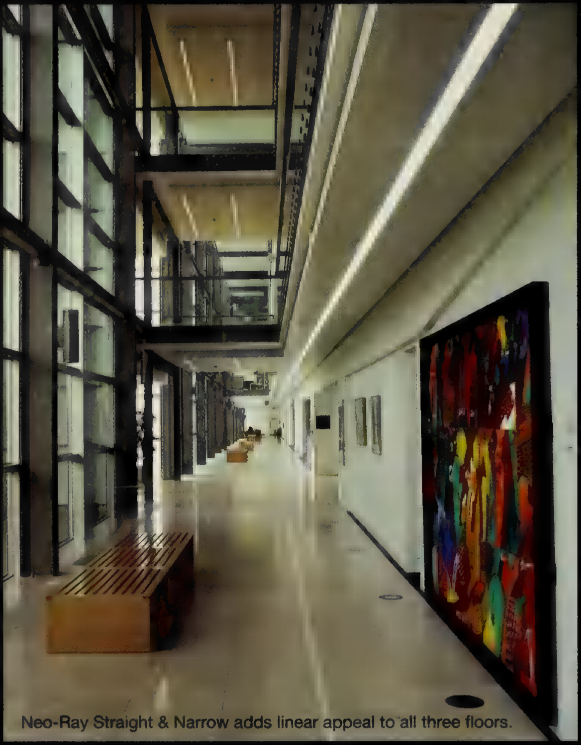
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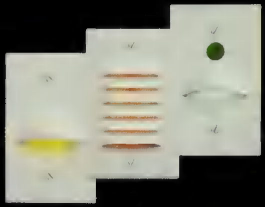

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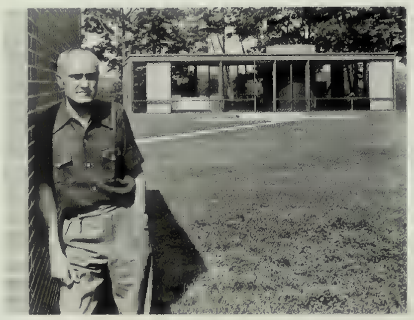
PHILIP JOHNSON'S GLASS HOUSE:

A classic example of Modern architecture is spiffed up for its public debut



By Suzanne Stephens

We expect buildings to physically age better and last longer than people. And well they should. But the Glass House, which Philip Johnson designed for himself in 1949 in New Canaan, Connecticut, never looked dated or old. As it readies for its public opening this month, it still appears as up-to-the-moment as the day Johnson posed at the house (top), on July 1, 1949, on the verge of his 43rd birthday. Even in 1974, when the Architectural League of New York helped Johnson (far left in photo, above) celebrate the 25th anniversary of the house with a picnic, the pristine steel-and-glass pavilion hardly looked like a period piece. Only the guests' attire and hairstyles give the year away.

Johnson, who died in 2005 at 98, had willed the house and its 47-acre estate to the National Trust for Historic Preservation in 1986. Over the years, while he lived there with his long-time partner, the art curator and collector David Whitney, also deceased, Johnson continued to add one small building or folly after another. On June 21, a ribbon-cutting ceremony will officially open the house and its numerous ancillary structures to the public.

The trust will provide guided tours of the property and is formu-

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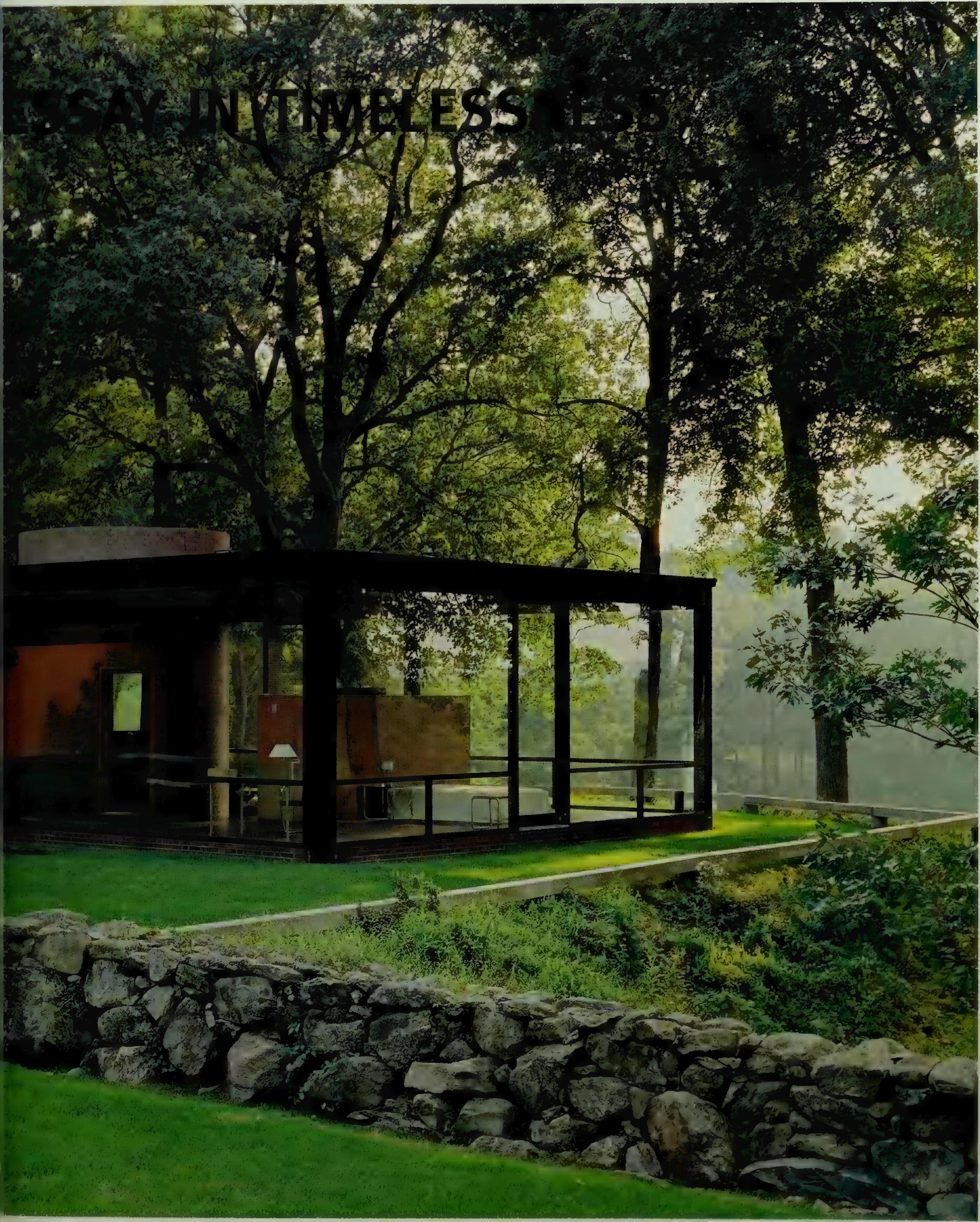
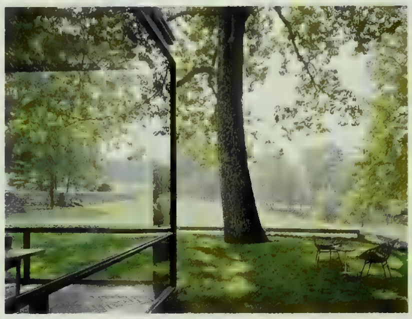
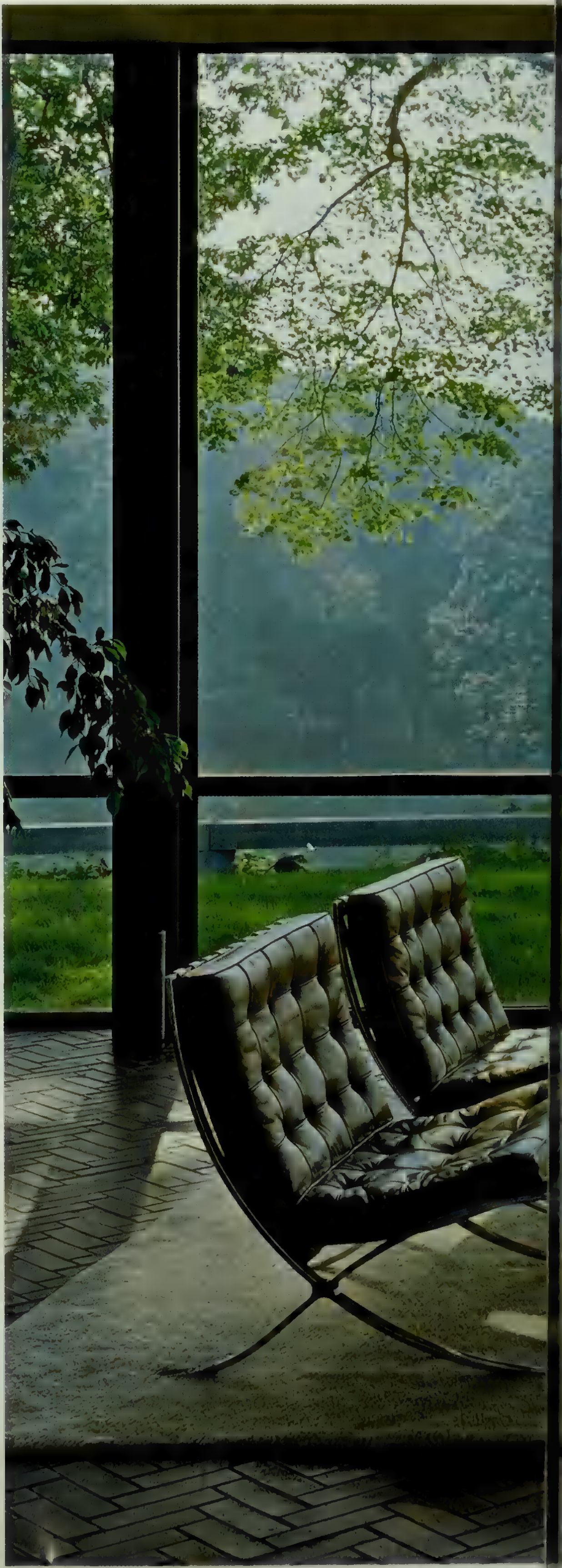
ESSAY IN TIMELESSNESS







“I have very expensive wallpaper.”

—Philip Johnson

lating plans for three- to five-day seminars relating to architecture, landscape, and art. It is also establishing Glass House Residential Fellowships in 2008 for young people from disciplines including architecture, art, preservation, and landscape to pursue their studies. Money for Glass House programs and preservation comes from Johnson’s and Whitney’s estates, supplemented by private fund-raising.

In getting ready for its public debut, the trust acknowledged that even a supremely ageless design needs a bit of work—or more than a little. It just finished 26 preservation projects on the grounds, which included fully replacing the Glass House roof. William Dupont, chief architect for the National Trust, decided that a coal-tar-pitch built-up roof with stone aggregate surfacing was the best bet to replace a dead flat one with a single drain.

And so today, the stringently linear 1,720 square foot pavilion, serenely poised on a knoll, still looks pristine. Its black steel structure both captures and frames the verdant setting through glass curtain walls, unsullied by curtains or shades. The original Barcelona chairs, daybed, hammock, and coffee table designed by Mies van der Rohe (right) also attest to the ability of classic Modern design to captivate long after the people who conceived it have left the building. ■

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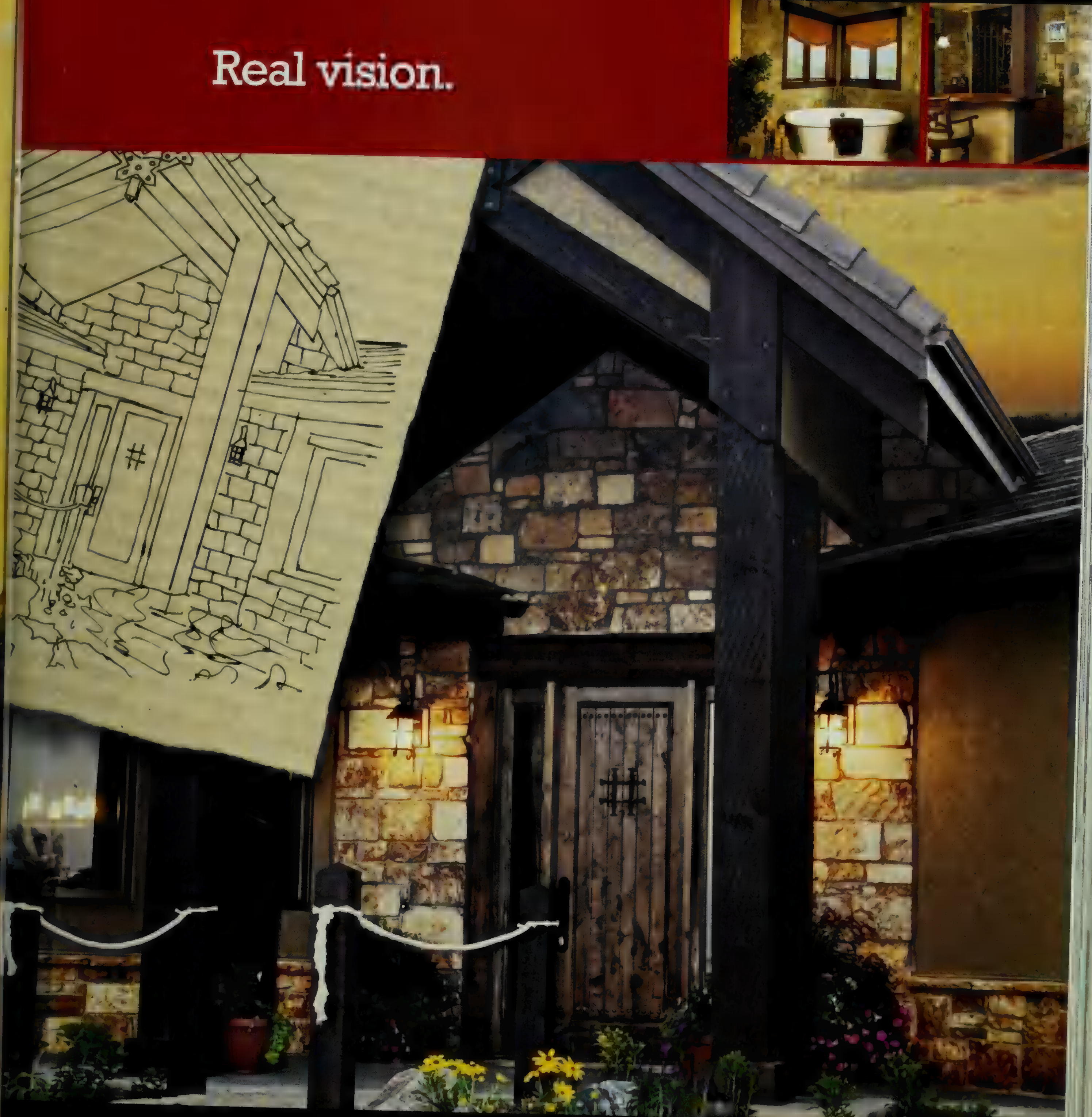

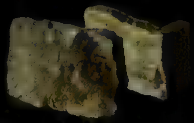

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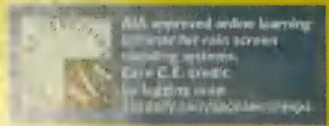

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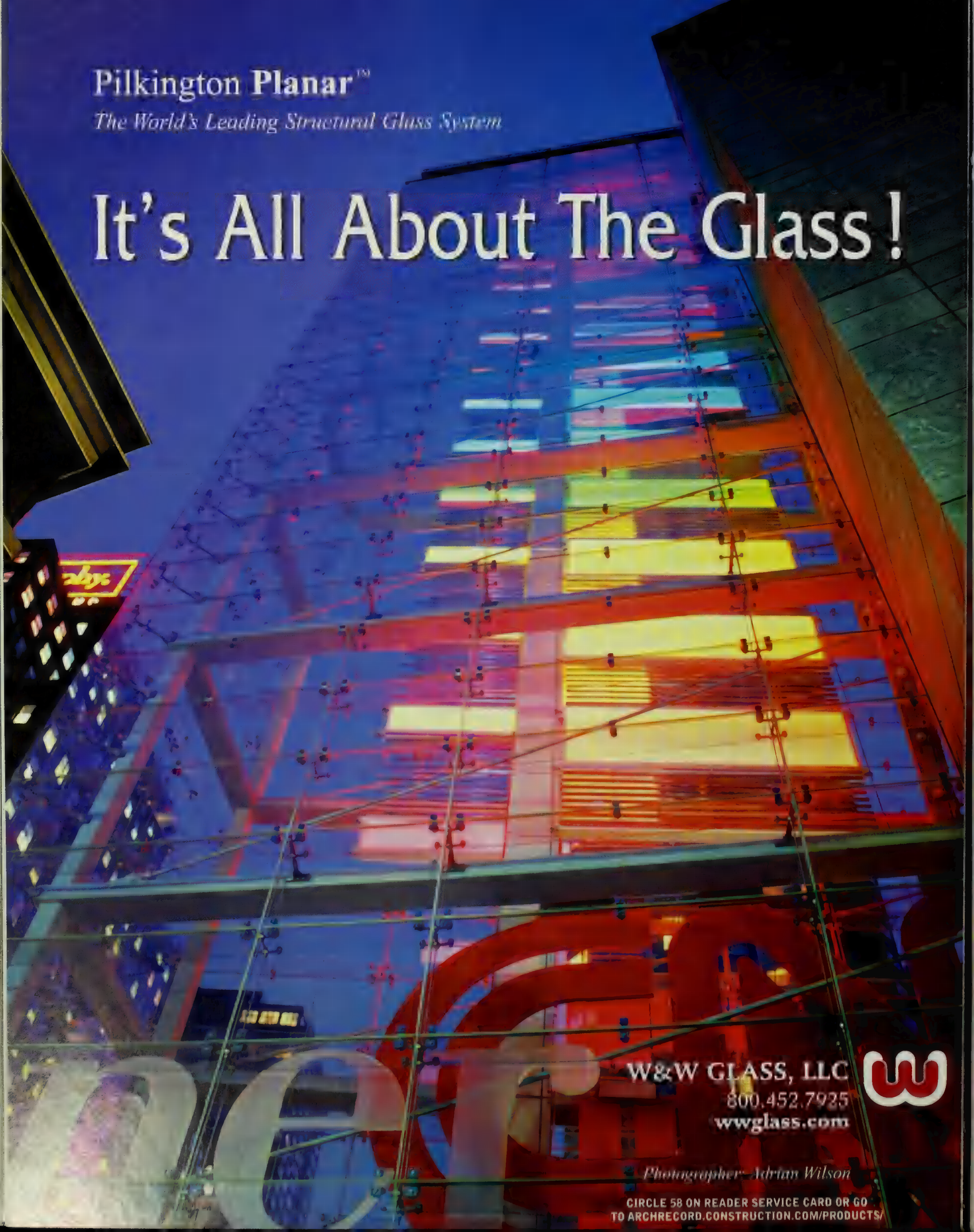

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Louis Kahn's 1962 Assembly Hall for Dhaka, Bangladesh, internalizes tradition.

On History and Culture

By Juhani Pallasmaa,
with Peter MacKeith

Architectural history is often seen as a cavalcade of styles amid varying concepts of architectural beauty. This view regards the history of our discipline as a completed past that has no vital presence in the practices of the present. As a consequence, contemporary architecture is often presented and treated as an autonomous, self-referential, aesthetic and intellectual realm, and the quality of its products are judged by the degree of their contemporaneity, novelty, and apparent uniqueness. Yet any meaningful creative work must be rooted and judged in a continuum of culture and in the specific discipline or craft. In a fundamental sense, then, the relevance of artistic work is judged by the past as much as by the future.

Architecture essentially is an existential art. That is to say, architecture articulates our experiences and provides essential frames and horizons for the perception, understanding, and evaluation of our own life situations. Architectural meanings cannot be invented; they are fundamental articulations of the human condition, ones that can only be re-identified and continually expressed anew in effectively surprising ways. Consequently, the true perspective of architecture is always beyond architecture as an artifact or an aesthetized object—the perspective is one fundamentally reliant on a deeper history and culture.

In today's world of global architectural practices, instant digital media, and incessant migration, however, the sheer possibility of "authenticity" and "cultural specificity" in architecture can be questioned. I do not, however, think about these notions in predetermined or conservative ways. Culture is the very historicity of life—a lived reality, not an abstraction or a given narrative—and it cannot be fabricated or invented. The experience of authenticity is not a notion of cultural or architectural anthropology; it arises from a full presence of lived and true life.

The deep problem with today's globalized culture is its very experiential and emotional shallowness—its lack of the aura of the real. Current political and economic forces support the globalization of lifestyles, customs, and values, but the ethical duty of architecture remains: to resist this erosion of cultural, perceptual, historical, and human quality.

Architecture continues to possess the capacity to root us in our domicile, to enrich and dignify our daily life, to still further express values of life that give us genuine satisfaction and joy. Yet, as contemporary architects distribute their signature images around the world, the very task and understanding of architecture is distorted. Instead of being a means of structuring and articulating the lived human world, the art of architecture presents itself as an instrument of mental manipulation and vulgar business, tragically both ahistorical and distant (in this, as well, architectural journalism also needs to reassess its ethical role).

In addition to responding to given functional, economic, and cultural realities and demands, architecture has another responsibility: to defend the historicity, authenticity, and continuity of culture. This implies that a critical practice of architecture must be based on the internal and autonomous ideals and objectives of the discipline itself. Responsible design is always based on

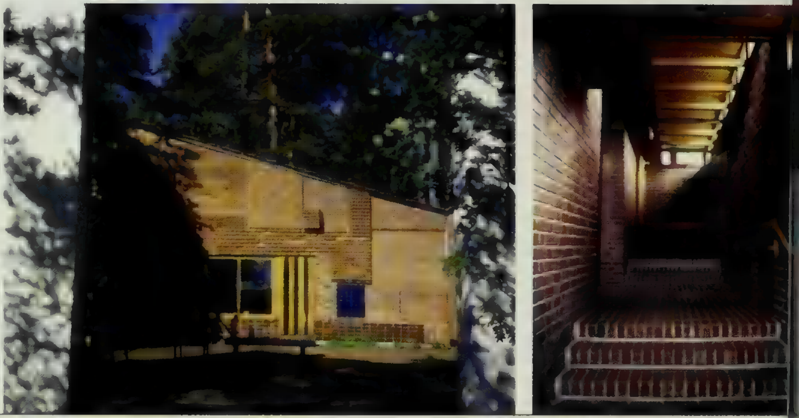
Juhani Pallasmaa is a Finnish architect, critic, and former dean of architecture at the Helsinki University of Technology. His many books include The Aalto House *(2003) and* Sensuous Minimalism *(2002).*

Peter MacKeith is the associate dean of the Sam Fox School of Design & Visual Arts at Washington University in St. Louis.

PHOTOGRAPHY: © ROBERTO SCHEZEN/ESTO

By introducing careful details, Carlo Scarpa's 1958 design of the Castelvecchio Museum in Verona, Italy (above and left), reinterprets the original structure.

Alvar Aalto's 1952 Municipal Center in Säynätsalo, Finland (below right), and [illegible] Muuratsalo, Finland, house (below) both respect regional traditions.



the dialectics of a reality sense and idealized images of culture. As Alvar Aalto said in a 1957 lecture: "Architecture … has an ulterior motive …, the idea of creating paradise … Every building … is intended to show that we wish to build a paradise on earth for man." On the stage of today's egotistical and narcissistic architectural theater, this higher objective of architecture is sadly lost.

Creative works are always supra-individual accumulations of experience and wisdom. Milan Kundera, the Czech-French writer, points out "the wisdom of the novel," to which all good writers listen. In my view, architects should similarly listen to "the wisdom of architecture," the accumulated understanding of the essence of architectural culture, encoded in the ancient and contemporary traditions of building. Architecture is truly a collective art form, although not only in the sense that it creates lived metaphors that concretize the cultural and mental structures of the society. Architecture is an art essentially based on collaboration—the obvious cooperation with numerous experts, builders, and craftsmen, to be sure—but moreover, collaboration with history and the wisdom that it possesses.

Although I am emphasizing the significance of the historical grounding of creative work, I am not promoting architectural conservatism or implying that architects need to become historians. As T.S. Eliot already advised us in his seminal 1919 essay, "Tradition and the Individual Talent," writers and other creative individuals need a "historical sense." This sense grasps the continuity of traditions, as well as the ruptures in the processes of traditions.

Most important, the history of our discipline and practice teaches us the art of respect and humility. The poet Joseph Brodsky writes, "Poetry is a tremendous school of insecurity and uncertainty," and continues, "Poetry—writing it as well as reading it—will teach you humility and rather quickly at that. Especially if you are both writing and reading." Brodsky's statement applies equally to architecture—particularly if you are both making it and theorizing about it! To work within our shared architectural heritage is to enter into a special realm of architectural responsibility and humility. The primary significance of this historical sensibility is that it assigns you your position in the continued dialogue of culture.

Eliot also warns us against a false respect of tradition, for tradition "cannot be inherited, and if you want it you must obtain it by great labour." I view very critically the posthumous execution of projects by architects who can no longer supervise and fine-tune the materialization of their ideas. Great architects have a magic touch, and a secret power to inspire the bricklayer and stone mason. Sigurd Lewerentz, one of the most provocative masters of the modern era, reportedly sat in a chair at the construction site of his 1956 St. Mark's Church near Stockholm pointing with his umbrella at each individual brick in the stack, and then at its final position in the wall under construction. One cannot simulate this personal, meticulous process. On the other hand, the 1983 rebuilding of Ludwig Mies van der Rohe's 1929 Barcelona Pavilion posed fewer problems. That reconstruction was fundamentally a re-execution of something that had already passed its channel of birth, and was exceptionally well recorded in its most minute detail and intention.

The same requirement of a creative and poetising presence applies to restoration. Since old buildings and settings usually have a multiplicity of layers and intentions, the principles and choices of restoration require specialized historical and

PHOTOGRAPHY: © PETER MACKEITH (THIS PAGE)

Sigurd Lewerentz dictated the placement of each individual brick during construction of his 1956 St. Mark's Church (above and left), outside of Stockholm.

Erik Gunnar Asplund's 1936 addition to the city hall of Gothenburg, Sweden, responds to the scale and rhythm of the original building (below).

scientific knowledge and judgment. But the materialization of a restoration project is ultimately an artistic task as much as the creation of a novel structure—think of Carlo Scarpa's 1958 Castelvecchio Museum, for instance. Even a damaged painting can be given a new life—or restored to death—depending on the subtlety of the eye and hand of the restorer.

The restoration of any modern building poses ethical, philosophical, and technical problems, beginning with the idea of the preconceived interdependence of form and function. What is the architectural validity of a functionalist building that has been given a new function? What is the value of a linguistic proposition devoid of its initial meaning? The technical problems arise from the frequent experimental nature of modernist structures, materials, and details. Traditional building methods and materials were tested by time and successive application, whereas modern architecture, as a consequence of its obsession for novelty, speed, and interest rate, has unfortunately continued to construct a successive series of untested prototypes.

GREAT CREATIVE INDIVIDUALS OFTEN HAVE AN AMAZING CAPACITY TO INTERNALIZE … CULTURAL TRADITIONS.

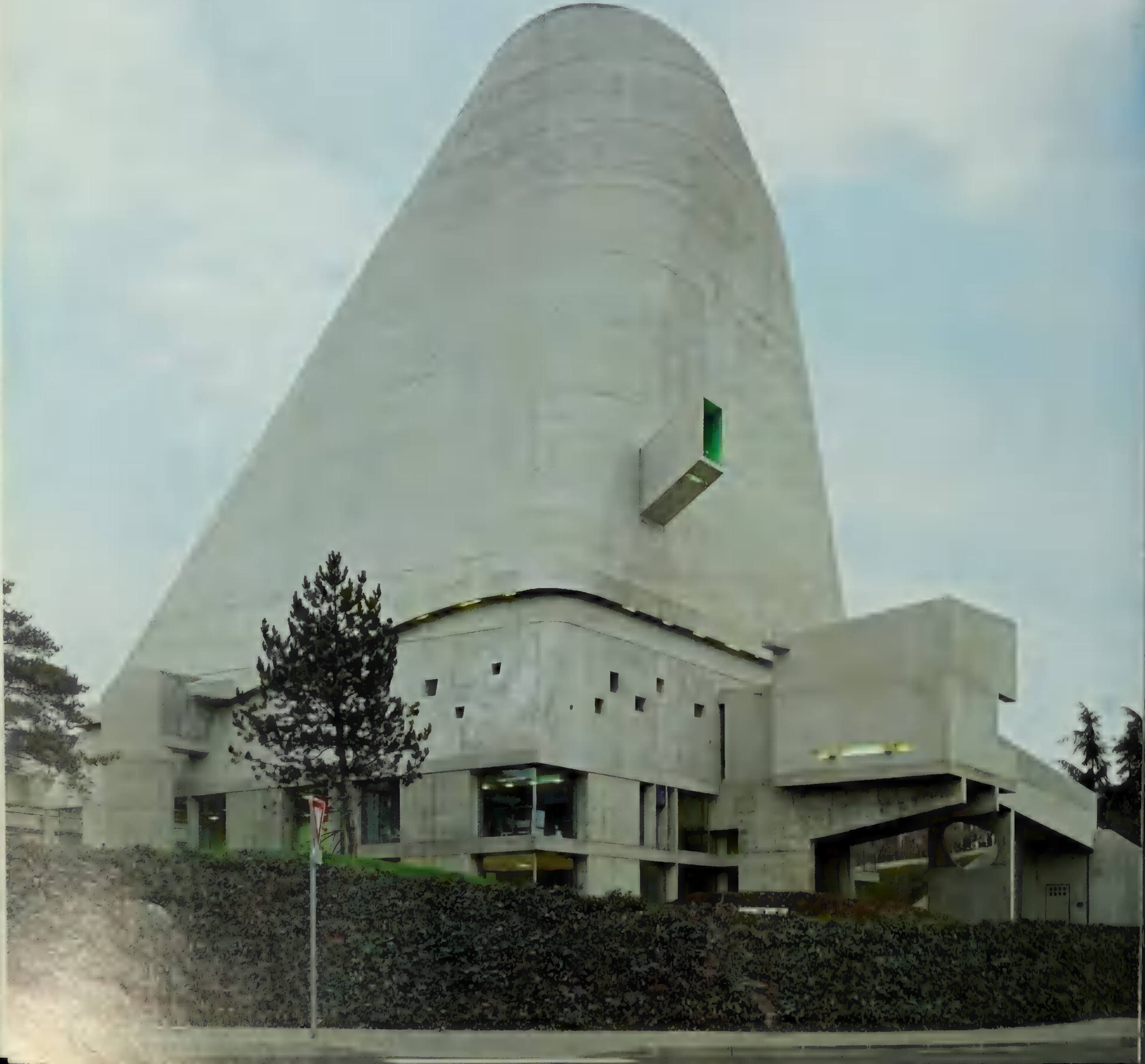
Extensions and additions to existing buildings pose equally unique challenges that can only be judged as unique cases. An extension in a different style can create an unexpected counterpoint and dialogue, as in Erik Gunnar Asplund's town hall extension in Gothenburg (1936), whereas in other cases, the added parts should blend with the original to create a neutral background. The objective of neutrality is surely the most demanding in architecture, because such neutrality is usually aimed at creating a supporting background that gives added presence to the foreground figures. Again, the result can only be judged by its artistic qualities, instead of being justified by theoretical preconceptions. Expanding or altering a piece of architecture is primarily an artistic task that naturally needs to be based on responsible understanding and appreciative historical judgment.

Lastly, with regard to designing outside of one's immediate cultural context, the essence of culture cannot be learned, only lived. Designing for such cultural contexts is almost necessarily doomed to turn into a shallow depiction of the overt characteristics of the culture in question, or in the standard case, to remain an alien import, and more and more nowadays, a simple monument to the fluidity of digitalized capitalism. Yet great creative individuals often have an amazing capacity to internalize qualities of landscape, light, and cultural traditions. I am here thinking, for instance, of Louis Kahn's serene, sublime works in Ahmadabad and Dhaka (we remember that Kahn was a Jewish immigrant from the remote Estonian island of Saaremaa).

But, again, whether building anew or working within existing circumstances, the architectural task calls for the synthesizing of poetic talent. As Alvar Aalto suggested in 1955: "In every case [architectural task], one must achieve a simultaneous solution of opposites … This harmony cannot be achieved by any other means than those of art." ■

PHOTOGRAPHY: © PETER MACKEITH (LEFT AND MIDDLE); KALLE SÖDERMAN (RIGHT)

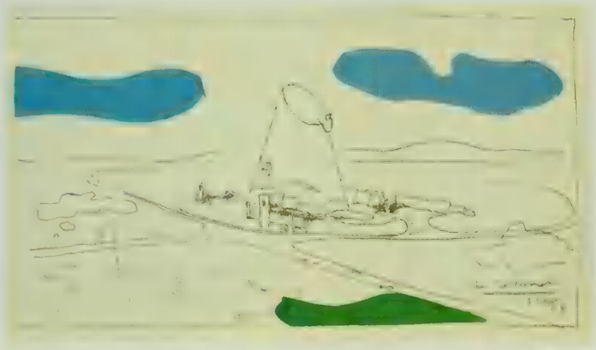
The Saint-Pierre church in Firminy, an industrial city in the Loire Valley near Saint-Etienne, France, sits on a knoll near Le Corbusier's youth center (called la Maison de la Culture) of 1965, and his municipal stadium of 1966, not far from his Unité d'habitation, finished in 1967. The church, owned by the local and regional governments, functions as a meeting hall but will be consecrated in a few months for religious use.



Le Corbusier and José Oubrerie are unusual collaborators on the EGLISE SAINT-PIERRE DE FIRMINY, whose design took 43 years to complete in the Loire Valley

By Jeffrey Kipnis

Blunt, thickset, elemental—these are your first impressions, having turned through the close neighborhood streets of Firminy and come upon the Eglise Saint-Pierre Firminy-Vert in the widening expanse of its suburban setting. As you approach, you find you have been further deceived: the pyramidal mass does not rest staunchly on the ground like the mountains in the background, but alights on a fragile base of glass and a thin concrete wall.



Le Corbusier's lithograph, *L'Eglise Saint-Pierre à Firminy*, 1963, is in the collection of the Musée d'Art Moderne Saint-Etienne Metropolis.

Alerted, you soon notice other surprises: positively the smallest cross ever to grace a Catholic house of worship, a checkerboard roof, and a menagerie of odd appurtenances attached to the volume—one thing looks like a nose, another a mouth, an ear, and yet another, an eye popping out. The inelegance of all these elements almost seems calculated to undermine the sense of gravitas promised by the building's initial impact.

Entering the grounds of the church, you ascend a knoll along a graveled path before coming to a bridge whose high outer wall cuts off the view to the outside world, an encouragement to shed all petty tribulations before crossing to its hallowed precinct. With each step you slip further into a devotional calm. Until you reach the portico. Interrupting the mood, a wall forces you to turn abruptly toward a front door whose flat color panels and cold frontality slap away any trace of reverie. Although you cannot know what the door means or represents, it insists that you think about it, and the intellectual demand of its conceptual abstraction yanks you back from the realm of the sacred to the secular.

Jeffrey Kipnis, a critic and theorist, is an architecture professor at Ohio State University, Columbus. His essay is excerpted and adapted from "A Time for Freedom," published in the catalogue accompanying the exhibition Architecture Interruptus, *held from January 26 to April 15, 2007, at the Wexner Center for the Arts, Ohio State University.*

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Shaking off that rude arrest, you proceed into a cavernous nave resonating with echoes and awash in concrete's drab shadows. Once inside, you are mesmerized by a constellation of white pencils of sunlight streaming through the thick air from the perforated east wall.

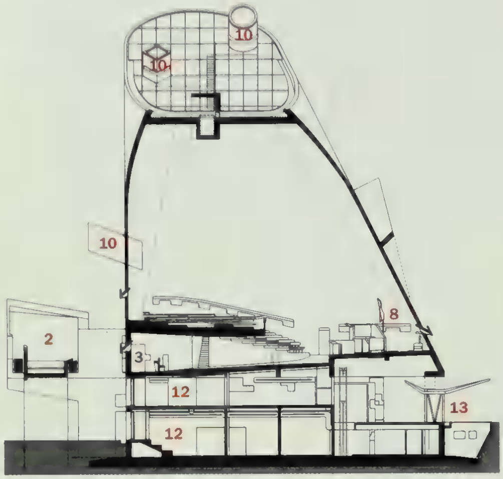
Eventually, you loosen yourself from the astral display, look around to get your bearings, and notice the shallow niches that ring the space with dashes of reflected color. Offsetting the sensational constellation with a memory of stained glass, they become bits of decorative irreverence: red, blue, yellow, green. Are these not the very colors you just met at the door? Finally, as you move up the warped floor to take a seat, you glance up to the shadow-black ceiling, where a red rectangle and a yellow circle beckon in the celestial distance. Sun and moon? Good and evil? You do not give these evocations too much thought: Their geometry and color do not insist upon it. But then, if these mysteries are divine light, should there not be only one?

Whatever your reaction to the church is, you cannot deny that you are in the presence of a flagrantly unforgettable architectural opus. Yet, as you depart and think back on how often the architecture of the church transported you to the brink of transcendence only to drag you back to the worldly realm, you might find yourself wondering if it is not somehow locked in a schizophrenic struggle with itself.

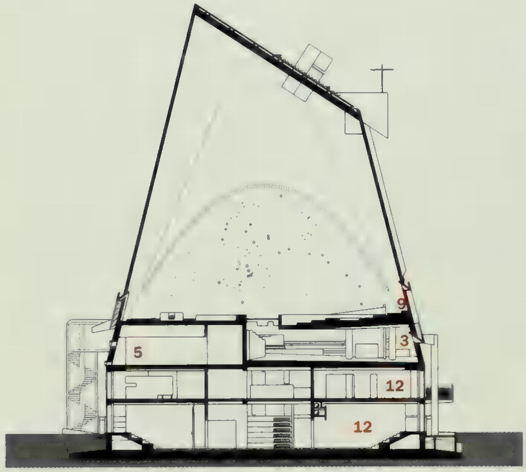
Conception and initial construction, 1961–2001

The basics are well-known: In 1961, Le Corbusier received a commission for a church in Firminy, a small mining town in central France, where he had

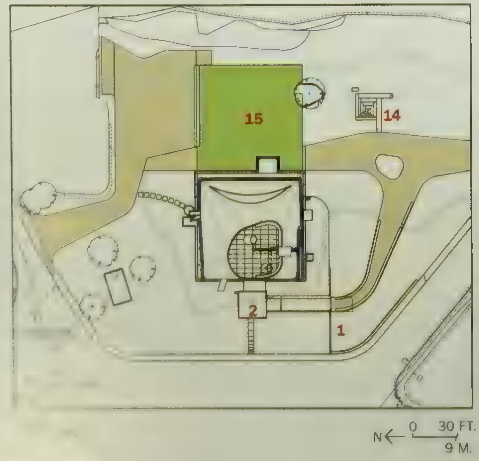
Project: *Eglise Saint-Pierre de Firminy-Vert, Firminy, France*
Architect: *Le Corbusier; José Oubrerie, assistant (1960–65); José Oubrerie and Louis Miquel (first phase construction, 1968–70); José Oubrerie (second phase, 1970–79); José Oubrerie, chief architect; Yves Perret and Aline Duverger, managing architects for site construction; Romain Chazalon, project architect and digital design*



SECTION A-A

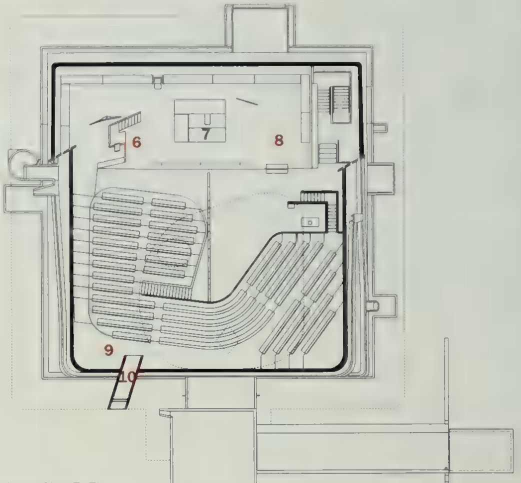


SECTION B-B

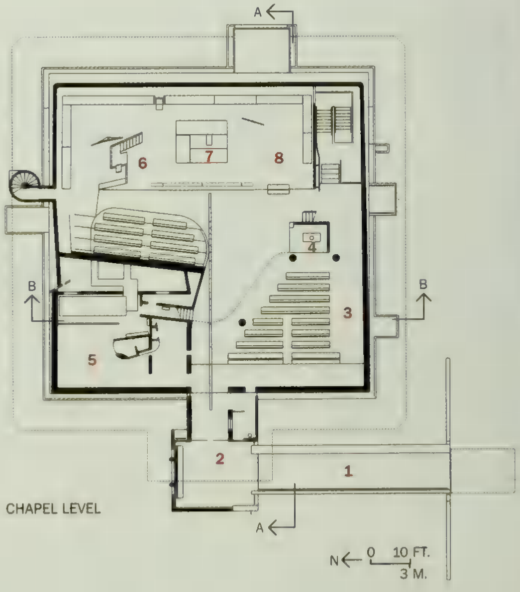


1. *Entry ramp*
2. *Entrance*
3. *Chapel*
4. *Chapel altar*
5. *Sacristy*
6. *Pulpit*
7. *Altar*
8. *Sanctuary*
9. *Church balcony seating*
10. *Light cannon*
11. *Reception desk*
12. *Museum galleries*
13. *Gallery entry*
14. *Inverted-pyramid sculpture*
15. *Lawn*

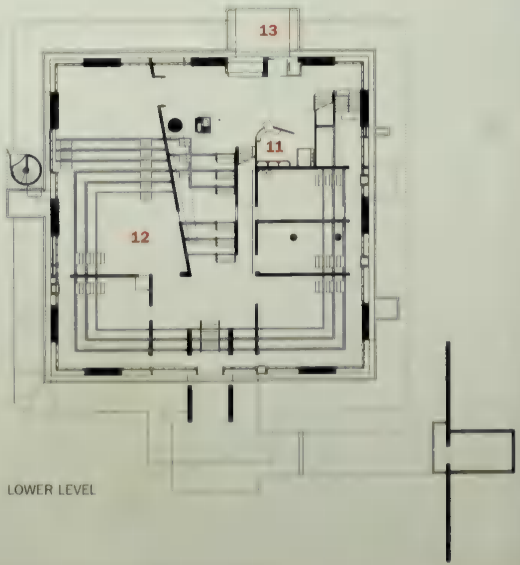
As the plans and sections (this page) illustrate, the sanctuary occupies a conically shaped concrete form sitting on a square base, which adjoins a square green lawn (site plan, left). An outdoor ramp, bridge, and portico bring visitors into the church, where they find themselves on a gently sloping floor that takes them up into the sanctuary, past a chapel, which is tucked underneath the sanctuary's balcony.



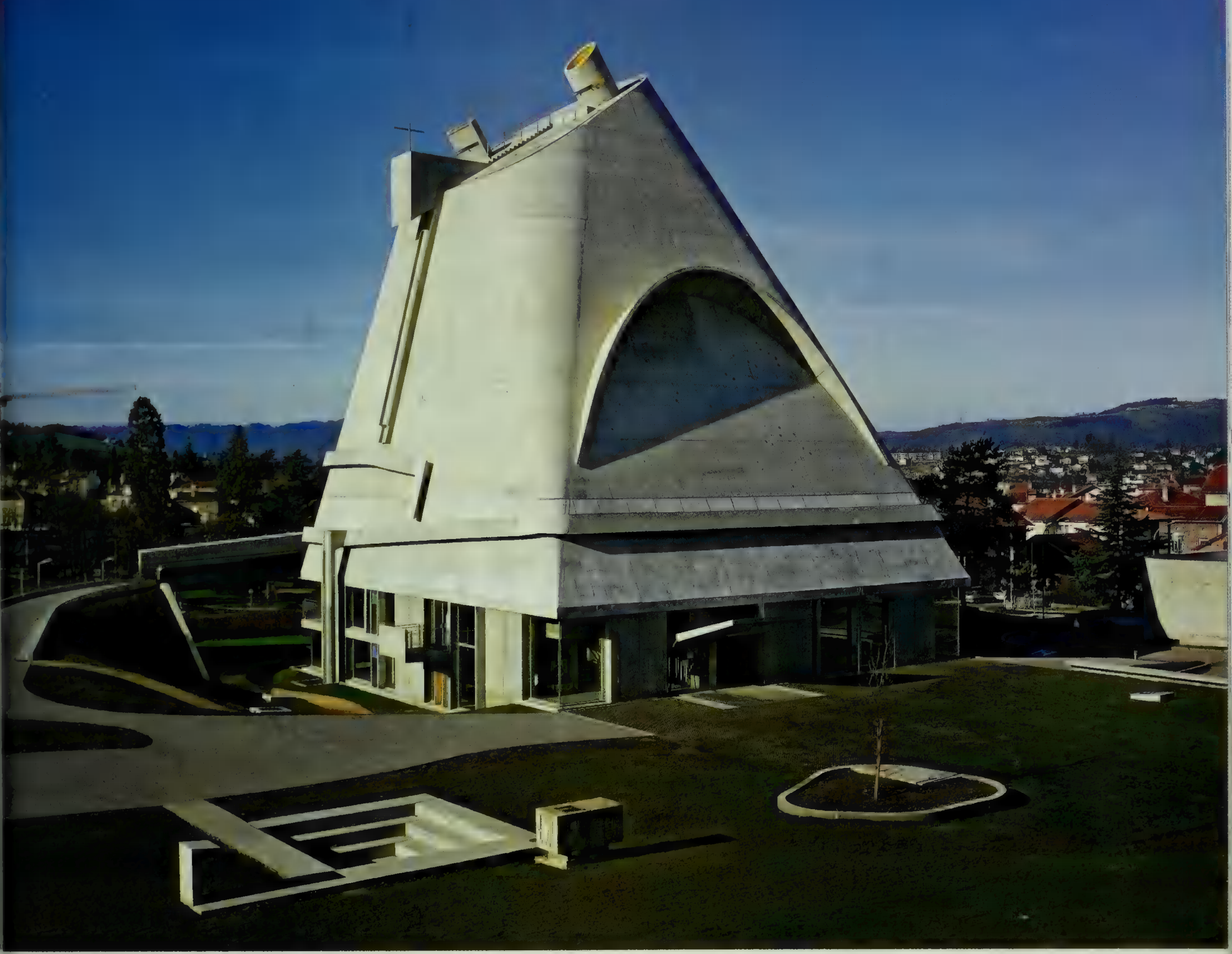
CHURCH LEVEL

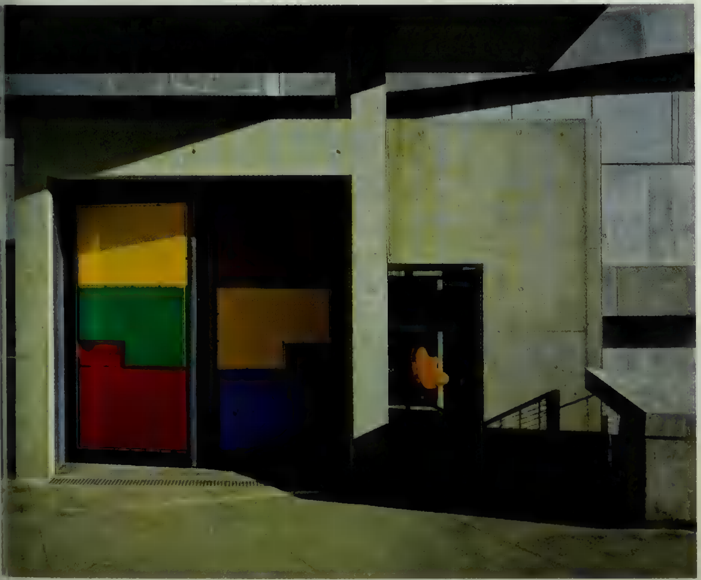


CHAPEL LEVEL



LOWER LEVEL

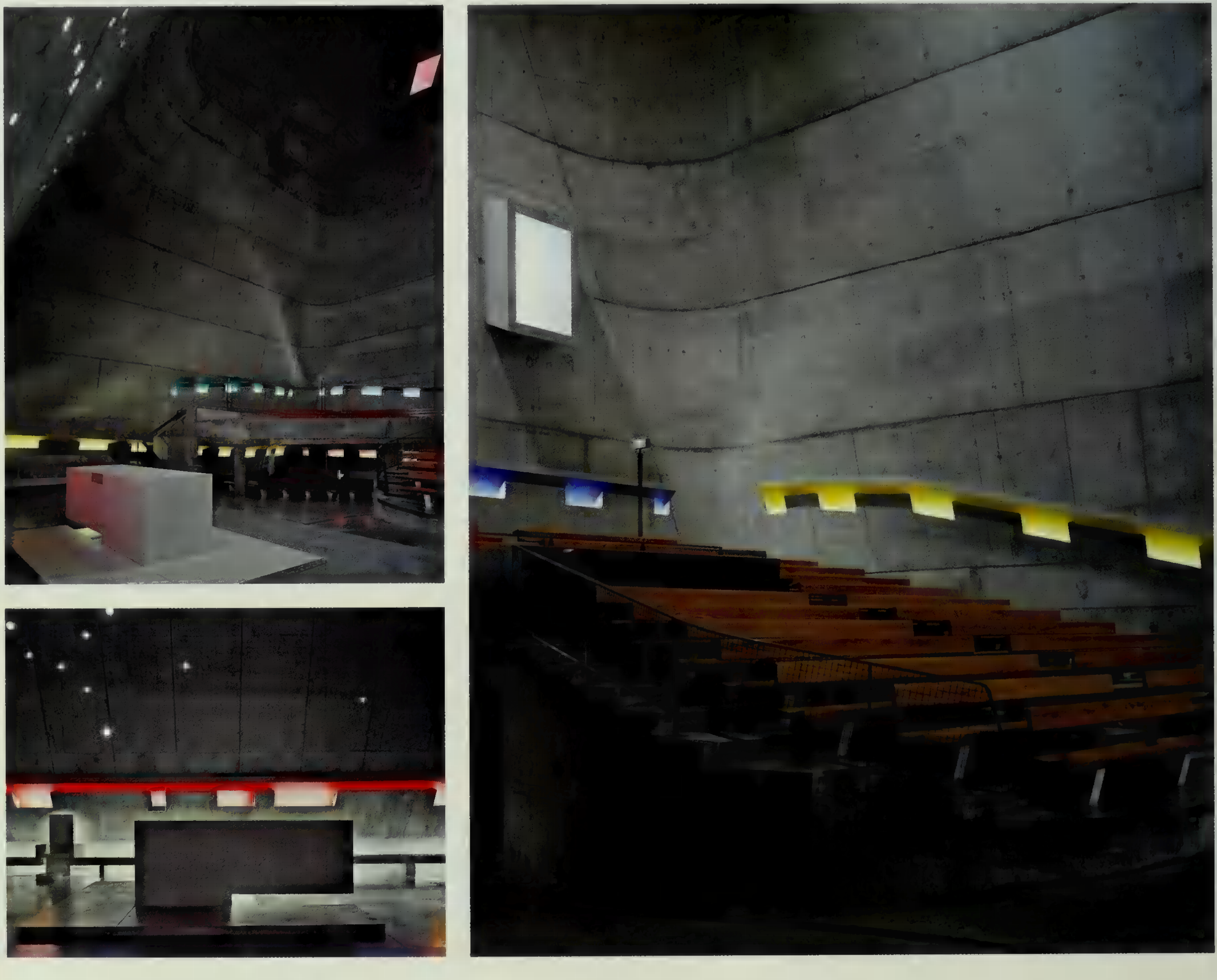




Visitors pass by a sunken inverted-pyramid sculpture (above) before taking the entrance ramp and bridge to the portico. There a colorful front door (left) awaits.

already designed a Unité d'habitation apartment block, a youth and cultural center, and a stadium. Working with his assistant, José Oubrerie, Le Corbusier developed a design over the ensuing 18 months. Support for the project dwindled, and by 1963 work in the studio stopped; two years later, Le Corbusier died. Oubrerie strove to complete the design and realize the church. In 1971, a sporadic construction process got under way, proceeding as far as the square base of the concrete building and the first ring of the shell. Lacking the commitment of church authorities and the backing from Firminy's new civic administration, construction came to a standstill in 1978. In 1999, to thwart possible plans to clear the site, the Association for the Construction of Firminy Church persuaded the French Ministry of Culture to declare the abandoned construction a historic landmark. Faced with the prospect of forever hosting a dilapidating concrete hulk as its most famous architectural attraction, the town resolved to finish the church. Oubrerie and project architect Romain Chazalon began work again in 2001, and five years later it opened.

Notwithstanding the saga of its gestation, the interest arising



In the concrete-walled sanctuary (above right), oak benches are located under a light cannon, while the altar (above left two) is bathed in light coming through apertures.

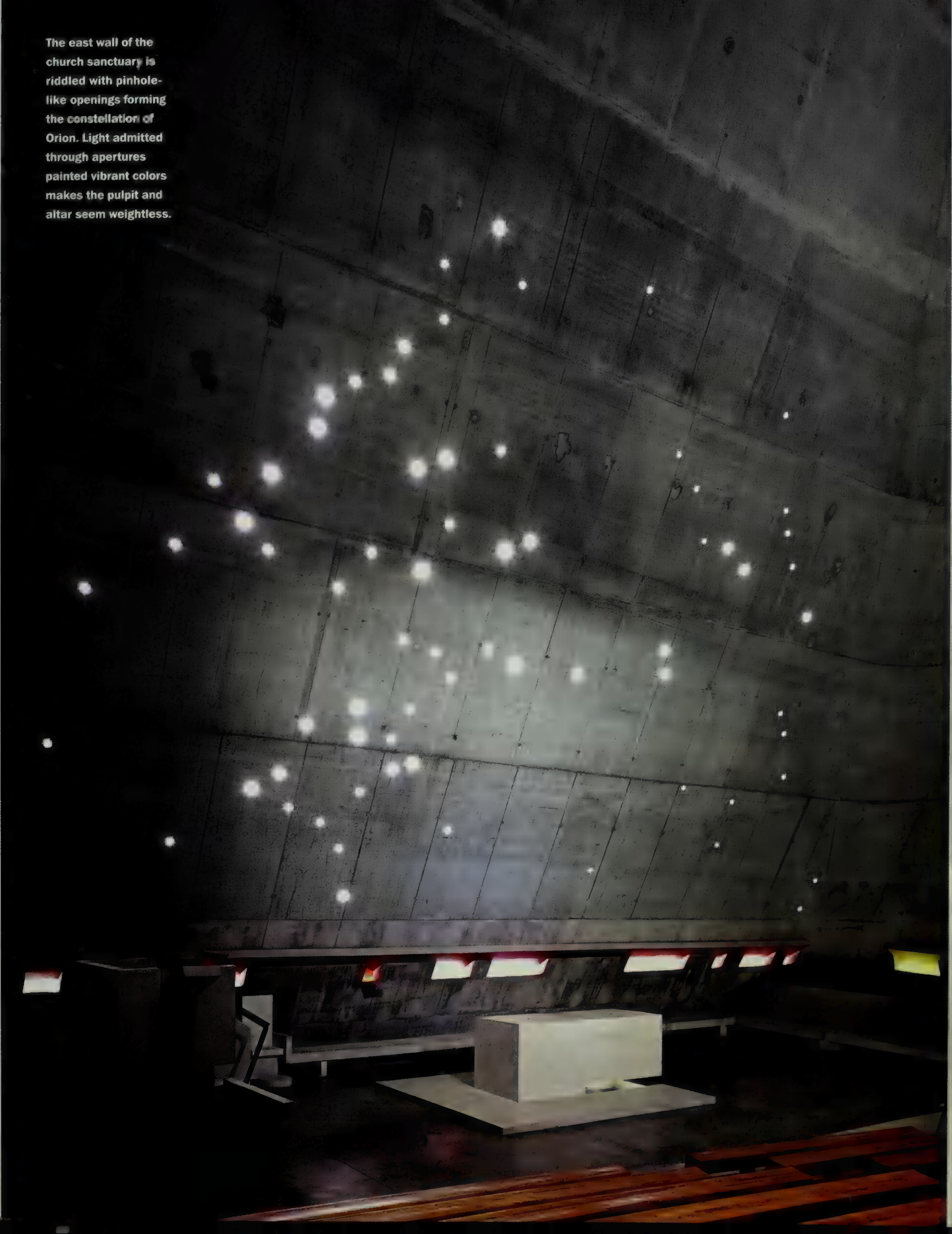
from the completion of the church rightly derives from the merits of Le Corbusier's original ideas and the relation of the finished building to them. Oubrerie was intimate with Le Corbusier's vision of the work; he executed the first drawing interpreting preliminary sketches, as well as every drawing and model to follow—without exception. He protected his mentor's original intentions with passion. But inevitably time and Oubrerie's own architectural personality colluded to nudge the work toward a more contemporary expression.

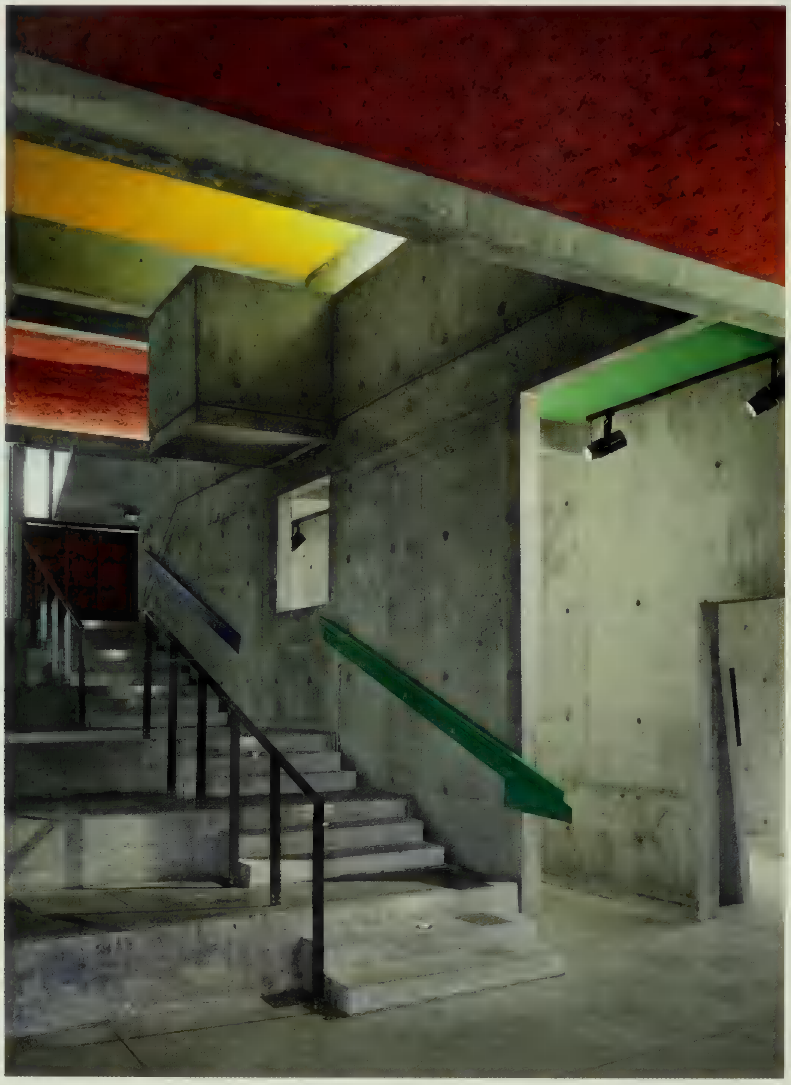
Sacred architecture posed a small dilemma to Le Corbusier: Even though he was well attuned to its devices, he saw his place in history secured by an unwavering commitment to the modernity of his secular architecture. He tried to resist the Firminy commission, conceding only because it came at the behest of his friend Eugène Claudius-Petit, the mayor of Firminy, who had commissioned the other buildings from him. Le Corbusier wrote to Claudius-Petit, "I shall do it for the workers." As for Oubrerie, when asked to comment on the building's worthiness as a church, he deferred the judgment [illegible] "In any case," he added, "I am an atheist."

Le Corbusier first addressed the issue of sacred structures in 1929—the year Villa Savoie was finished, a compelling example of his five points of architecture: pilotis, free plan, free facade, horizontal sliding window, and roof garden. Sketches for his first church commission, Le Tremblay, indicate an inclination to synthesize the traditional processional of religious architecture with the more egalitarian five points. Sketches of the unrealized Tremblay project show an ascending ramp spiraling around the outside of the extruded square of the church. When work began on the Eglise Saint-Pierre, Le Corbusier revisited Tremblay's long-dormant diagram, replacing the square with a hyperbolic parabaloid form.

By 1963, Le Corbusier had built two of his most admired buildings, both, ironically, religious works—the convent Sainte-Marie de La Tourette (1953) near Lyons, and the pilgrimage chapel Notre-Dame du Haut in Ronchamp (1955) near Strasbourg. Nevertheless, early sketches of Firminy reveal that his internal struggle with a dilemma continued. Though the abstract geometry of the hyperbolic parabaloid form was clearly meant to break with the architectural traditions of the Catholic Church, Le Corbusier's first sketches revealed his intention to include a customary rose window. For structural reasons, he abandoned this idea, replacing the window with the oculi in the form of the constellation of Orion.

The east wall of the church sanctuary is riddled with pinhole-like openings forming the constellation of Orion. Light admitted through apertures painted vibrant colors makes the pulpit and altar seem weightless.





Jolts of color and natural light enliven the exposed concrete interior, as shown by an aperture in the sanctuary (above) and stairs leading from the church down to galleries slightly below grade (left). Four galleries and a conference room in the square base, partially submerged below grade, now belong to the Musée d'Art Moderne Saint-Etienne.

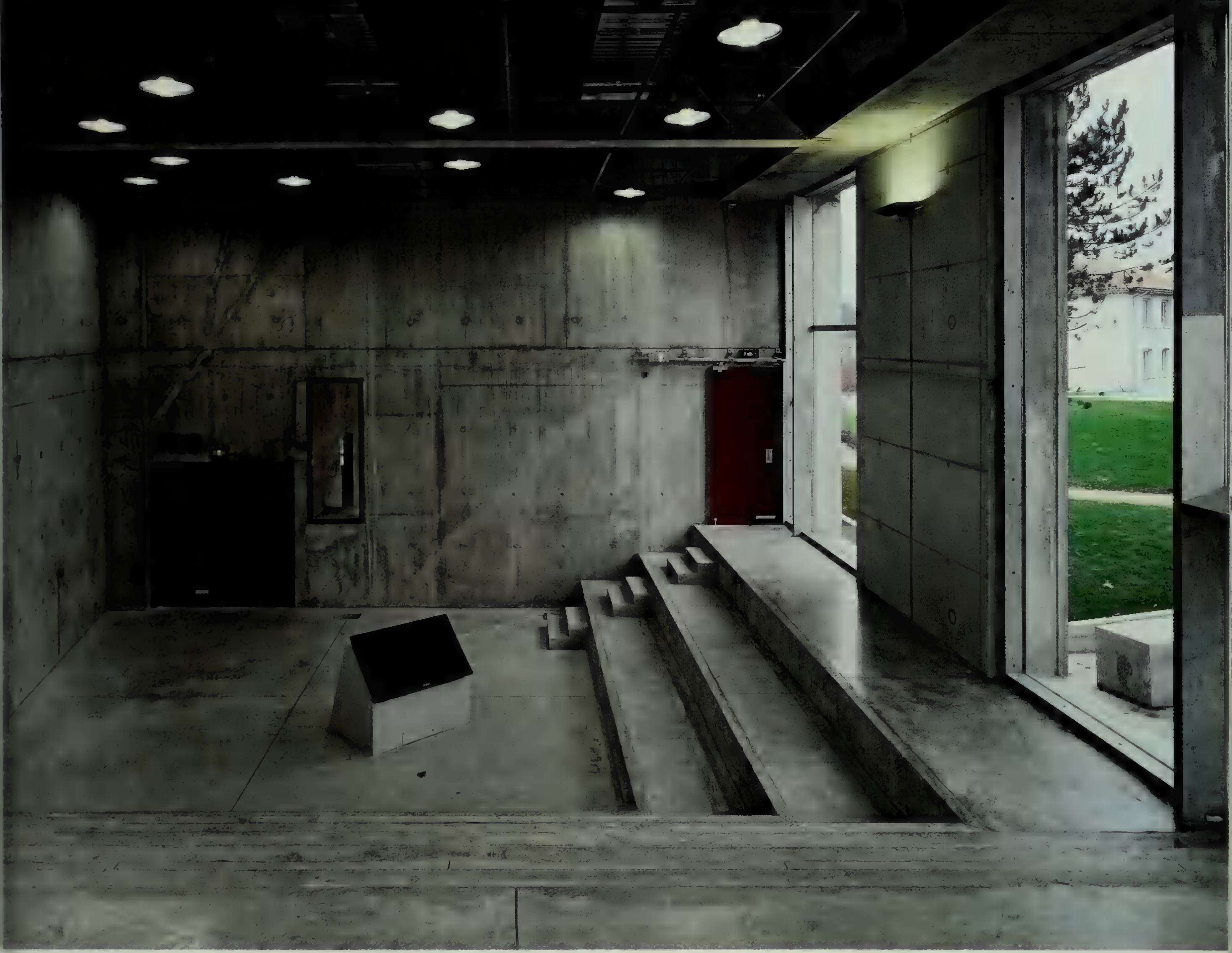
In his *Oeuvres Complètes*, Le Corbusier remarks tersely that Firminy "consists of a hyperbolic paraboloid shell, and, after Ronchamp and La Tourette, represents a third, new type of church." Firminy indeed came to be seen as the unfinished finale to a sacred trilogy. The convent at La Tourette drew on his approach to secular housing: He created a powerful square block with three sides of monastic cells and a cruciform chapel as the fourth side. The north transept of the chapel nestles inside the square, but the south transept protrudes out, supplementing the rational block with an episode of expressive spirituality. At Ronchamp, La Tourette's square plan loosens; free forms billow out of it, their spiritual passion unfettered by geometry. However affecting, Ronchamp's abandon seems out of character: For Le Corbusier, it was a regression from a modern to a romantic world view.

In the Firminy church, we find La Tourette's square base beneath Ronchamp's sculptural sanctuary now disciplined by the hyperbolic paraboloid. This consummate synthesis generates an advance in architectural form. Le Corbusier had already employed the hyperbolic paraboloid in previous works, most notably in the Assembly Hall at Chandigarh, India (1953–63). The beguiling eccentricity of the Firminy [illegible] derives from the architect's distortion of this geometric form in his desire to morph it onto the square base.

The problem of adapting Le Tremblay's external ramp to Firminy's unusual form—and, in particular, entering the church—remained a challenge. From 1961 to 1963, Le Corbusier and Oubrerie wrestled with the entry procession through numerous design variations, and in the end that aspect remained the least resolved. The final scheme retreats from any of the developed solutions to a diagram of three elements awaiting later design: the ascent of the land, the bridge, and the portico.

Completing a chef d'oeuvre, 2001–06

José Oubrerie's personal touches at the church arise for the most part out of necessities such as finishing the design for entry. To receive crucial state funding in 2001, the Association for the Construction of Firminy Church placed a museum in the square base originally designated for the lay functions of the church. And, of course, much had changed over four decades, from construction technology to building codes to air-conditioning. The current building code, for example, required that the new walls of the concrete shell be ¾ inches (2 cm) thicker than in 1972, when the first ring was poured. Oubrerie would not tolerate any overbite on interior or exterior, so after considerable "discussion," he was allowed to taper the



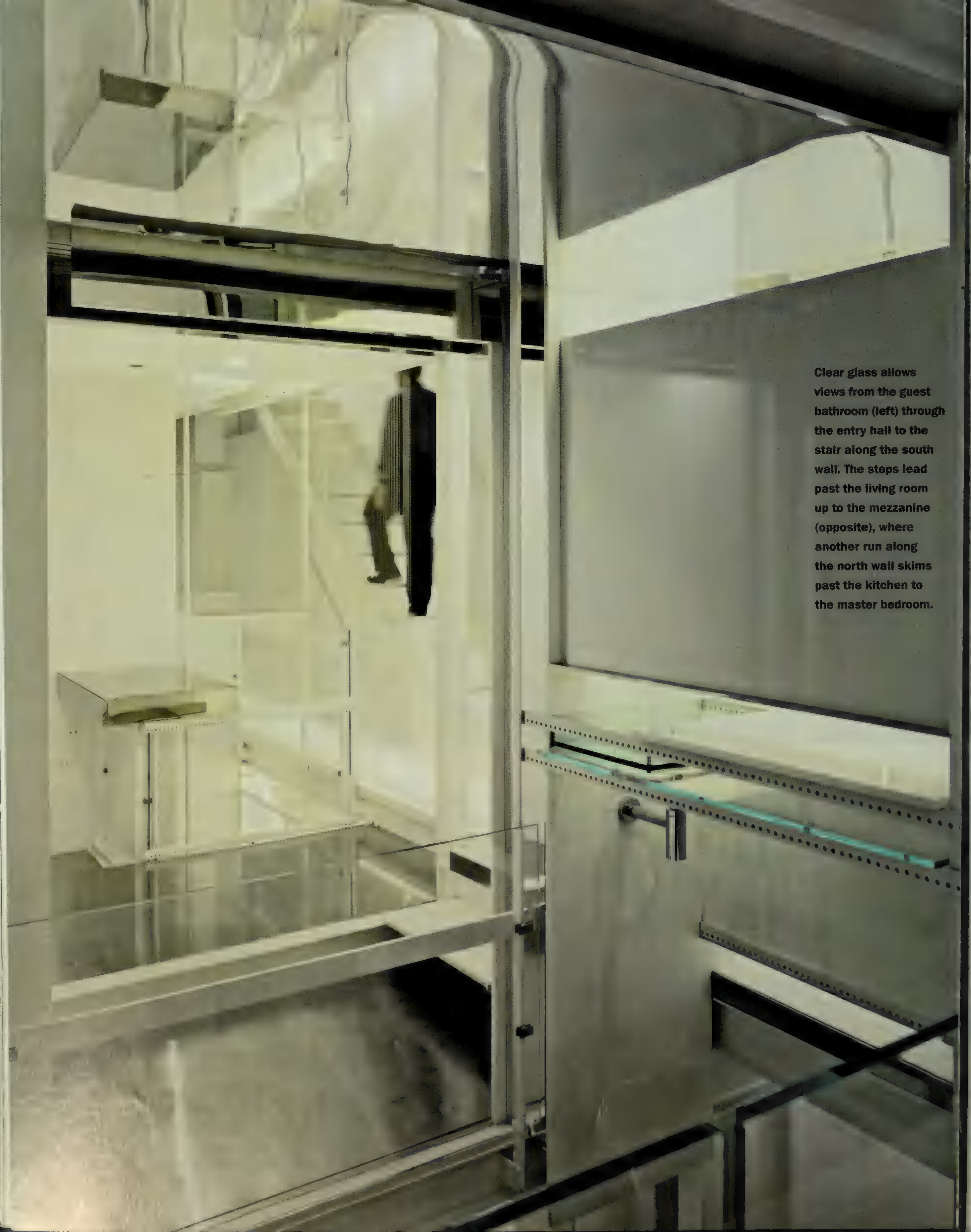
Originally planned as church meeting rooms, the stepped concrete spaces (above and left) in the building's base may be devoted to displays on Le Corbusier's Firminy projects.

thickness of the first new ring of the shell to the thickness of the existing ring.

On the other hand, other demands on the original architecture simply were not negotiable. The outside ramp that completes the spiral ascent to the sanctuary—and makes palpable the transition from the profane world to the sacred—was originally conceived at a grade far too steep for accessibility regulations. Oubrerie reduced the actual grade to a comfortable four degrees, but raised the height of the bridge's outer wall to optically give the impression of a sharper incline.

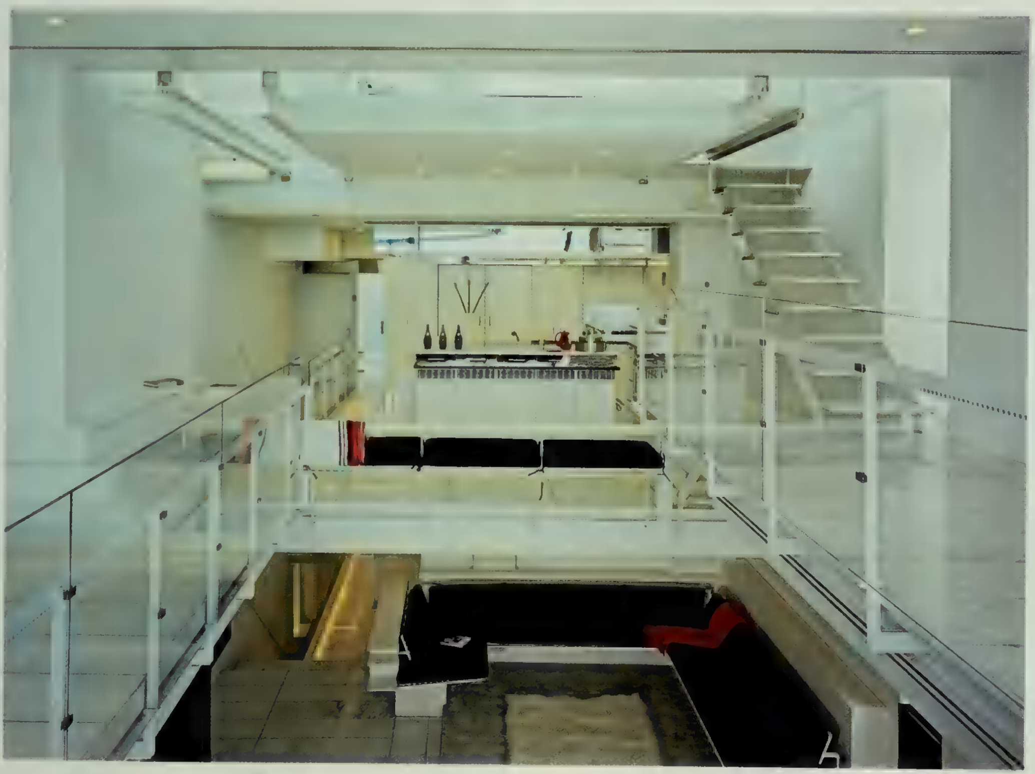
In several instances, Oubrerie simply indulged himself. For example, he removed part of the floor beneath the altar to allow the space of the church to communicate with the museum below. On the side facing the street, just in front of the portico, he left an incongruous cluster of small rectangular apertures (artifacts of the original formwork) in the otherwise monolithic apron of the cone. These tacit mementos also foreshadow the appearance of the constellation in the sanctuary.

Consciously or not, Oubrerie's myriad *(continued on page 228)*



Clear glass allows views from the guest bathroom (left) through the entry hall to the stair along the south wall. The steps lead past the living room up to the mezzanine (opposite), where another run along the north wall skims past the kitchen to the master bedroom.

Della Valle Bernheimer's thoughtful renovation of the PAUL RUDOLPH PENTHOUSE in New York rises from his original intentions



By Suzanne Stephens

This could be called one of the toughest renovation jobs imaginable. Actually, it's the most recent and most extensive revamping of one of Paul Rudolph's best works—his own penthouse on New York's Beekman Place, which he started in 1978. The architects, Jared Della Valle, AIA, and Andrew Bernheimer, AIA, hesitated telling friends they were working on this iteration, completed in 2006, until they could be sure it was turning out as hoped. It has. While Della Valle Bernheimer's rendition presents a muter, sparer version of the original, the architectonic essence is very much intact.

Rudolph lived in his luminous, multiple-level apartment rising atop a five-story 1900 town house on Beekman Place in New York City until he died in 1997. During the 19-year period he was there, his limpidly shimmering exercise in the play of space, light, and planes acquired a cult following in the architectural community. Its glamorous and treacherous moments were legendary: You had to thread your way from one end of the apartment to the other on transparent acrylic bridges; you went up and down its 30-some-odd split levels via ethereally planar open-riser stairs with nary a handrail in sight. Then there was the tub in the master bedroom on the top level with its transparent (acrylic again) bottom, so that daylight could make its way from the glazed roof down through water to the entry below. In spite of the vertiginous circulation and the double-height volumes carved out on both the east and west sides of the apartment, the design constantly pulled you out to panoramic views of the East River, in a symphony of contracting and expanding spaces.

Rudolph's fascination with natural light and reflective surfaces, punctuated by a collection of art objects and sculpture, prompted the

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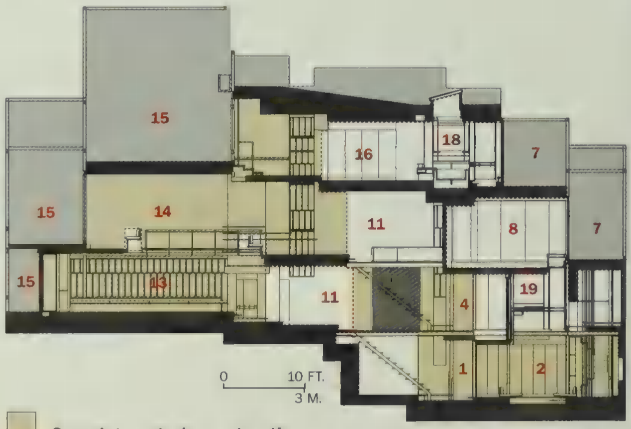
Project: *Paul Rudolph Penthouse, New York City*
Architect: *Della Valle Bernheimer—Jared Della Valle, AIA, Andrew Bernheimer, AIA, principals; Adam Ruedig, project manager*
Contractor: *CW Contractors—Corey War, president; Gregory Horgan, project manager*
Special materials application: *Joe Ginsberg, Inc.*

The kitchen looks out toward the East River (above). A stair with a screen of stainless-steel cables leads from the mezzanine and dining area to the master bedroom (above right).

1. *Entry*	**11.** *Corridor*
2. *Den*	**12.** *Sitting*
3. *Storage*	**13.** *Living room*
4. *Second level entry*	**14.** *Mezzanine*
5. *Home office*	**15.** *East terrace*
6. *Exercise*	**16.** *Master bedroom*
7. *West terrace*	**17.** *Master bath*
8. *Bedroom*	**18.** *Master tub*
9. *Kitchen*	**19.** *Bath*
10. *Dining*	

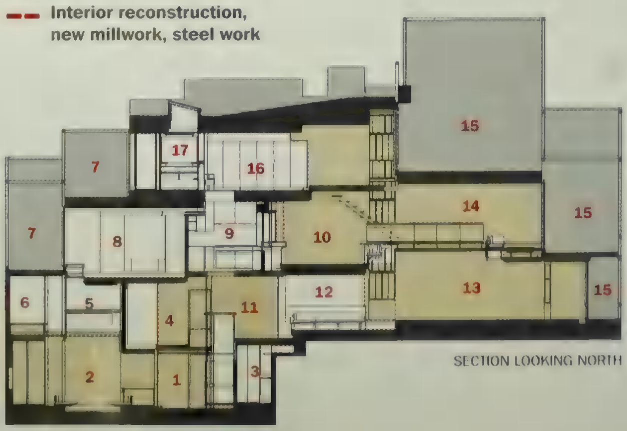


SECTION LOOKING SOUTH

▨ **Complete exterior restoration**

▨ **Interior restoration of building finishes, minor steel work**

-- Interior reconstruction, new millwork, steel work

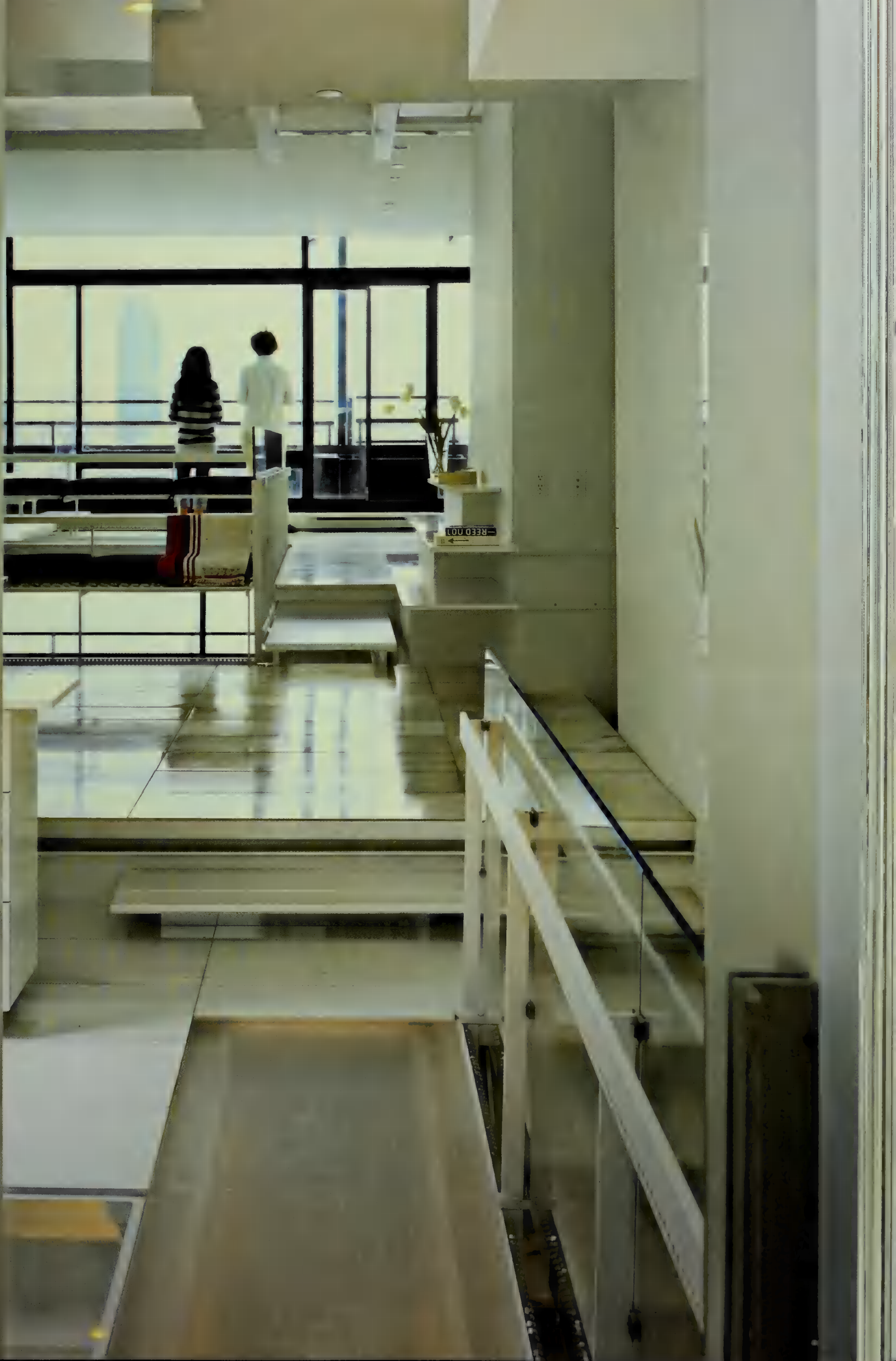


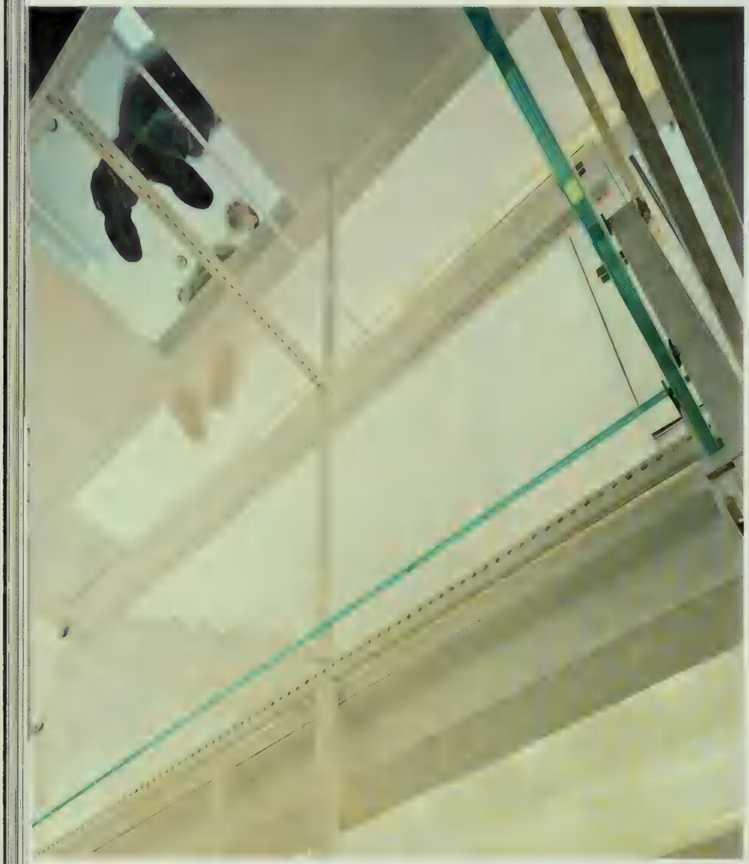
SECTION LOOKING NORTH

cognoscenti to compare it to Sir John Soane's house museum in London, which the eccentrically Classical architect created from 1808 to 1812. Soane kept the house intact in perpetuity by negotiating an Act of Parliament in 1833 to establish it as a museum after he died in 1837. No such luck with Rudolph. When he died, it took three years for his estate's executors to find new owners who wouldn't tear the apartment apart. Finally, in 2000, Gabrielle and Michael Boyd, art and furniture collectors with two small children, stepped in to buy the town house, including the lower floors that Rudolph had designed and leased out.

The Boyds transformed the basically four levels of Rudolph's penthouse plus the floors below it into a house museum of sorts. It attempted to offer a sympathetic testament to Rudolph's vision, while displaying a substantial collection of 20th-century Modern furniture and artworks. But the Boyds did make changes. They stripped off the chromed laminate Rudolph had applied to steel beams and columns to match the gleam of stainless steel in the floor, and they put Sheetrock under the clear tub that hung above the entry and part of the kitchen. To keep visitors (and residents) from suffering [illegible] they partially enclosed the sides of the floating stairs with vertical [illegible] [illegible]sted acrylic panels, and replaced the clear acrylic floors of the [illegible] with a translucent version. Many of the reflective and transparent

The frosted-acrylic floors of the bridges remain from the preceding renovation, but Della Valle Bernheimer replaced carpeting with a glossy epoxy to heighten the luminosity of the space (right).





After removing a dumbwaiter, the architects sealed off the shaft with clear acrylic (left). They installed a new opaque-solid-surface master tub (below) in place of the original transparent one west of the master bedroom.

planes and lines disappeared into a more ascetic white, albeit still Constructivist environment. But then the Boyds moved to California, and the building changed hands. The current owner, with his own architect, was halfway through redesigning the penthouse apartment for his use, when he felt the need for an architectural firm more in tune with Rudolph's vision. He consulted Corey Ward, president of CW Contractors, who advised him to take a chance on the 11-year-old firm Della Valle Bernheimer.

Knowing that an idiosyncratic house is best suited to the architect who created it, Della Valle Bernheimer and Ward worked hand in hand to modify the spaces for the present owner's needs while saving as much of Rudolph's concept as possible. With regard to the original design intentions, Jared Della Valle notes that "Rudolph viewed the apartment as an ongoing experiment," an observation also made by others familiar with its many early incarnations. So rather than worrying about returning to one authentic moment, the architects decided it was simply best to attempt a reinterpretation based on the architect's spatial concepts, choice of materials, and design elements.

The team acted as forensic analysts in a sense, looking at the drawings documenting Rudolph's scores of iterations, in order to put themselves in his shoes. They wanted to arrive at decisions that Rudolph might have made in responding to the current owner's different programmatic needs, and to choose improved materials and methods that Rudolph himself would have wanted if he were renovating this place now.

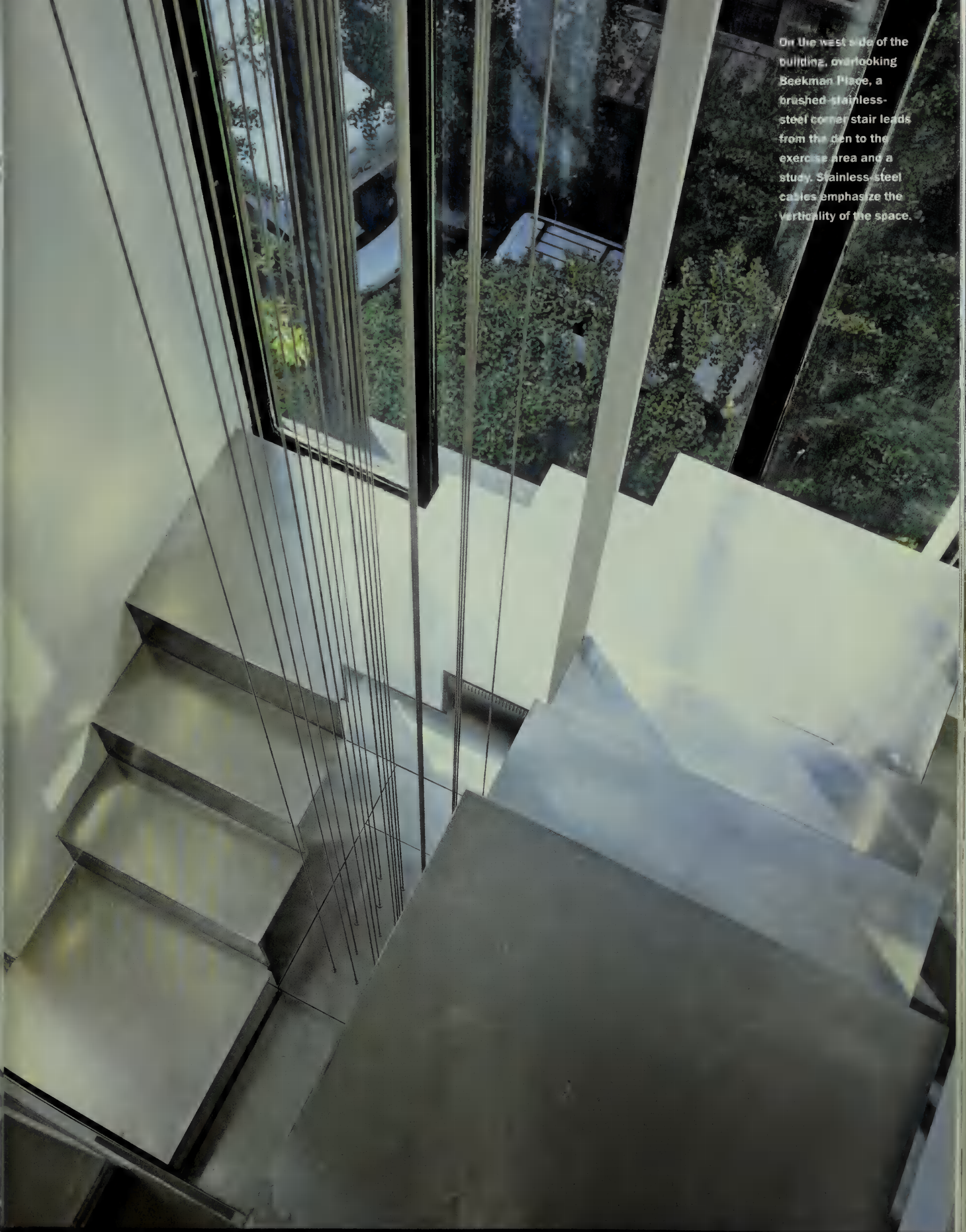
A lot of original elements had been tossed out already, including finishes that had not aged particularly well, such as carpeting, Sheetrock, and melamine, a white resin-based paper on particle board. The team pulled in Joe Ginsberg Inc., specialists in custom fabrication and materials applications, to provide such items as mirror-finished stainless steel and acid-etched, brushed, and sandblasted glass, as well as new details, such as hardware. Ginsberg sought finishes that resembled at a glance Rudolph's original choices; for example, the company gave the new wood cabinetry a varnish coating that recreated the look of melamine. Where the new owner wanted to keep the stainless-steel plates on the floors in the guest bedroom and media room, Ginsberg matched the aging stainless with a version that wouldn't appear jarringly brand-new. The architects had to kept the translucent acrylic bridges from the previous renovation, since the client wanted to avoid the expense of going back to clear acrylic. Della Valle Bernheimer, however, removed a dumbwaiter and sealed the shaft with clear acrylic to create a transparent light well running vertically through the apartment.

The architects slightly raised Rudolph's low seating areas that scraped the floor. Instead of carpeting, they installed an epoxy surface with a sheen echoing the often smooth waters of the East River outside. To fend off twinges of vertigo, the architects substituted vertical screens of parallel stainless-steel cables with rivets along the edges of stair treads (not unlike some Rudolph had used), which are more diaphanous than the vertical louvers enclosing stairs in the Boyd renovation. Clear glass panels now form the mezzanine balustrade instead of the white, frosted acrylic of the Boyd years, or the gleaming acrylic of the Rudolph era.

Other changes involved reconfiguring the kitchen and redoing the bathrooms, which had to have new plumbing and electrical fixtures, along with solid-surface counters and cabinets. The master bath needed enlargement, although the owner wanted it in the same spot.

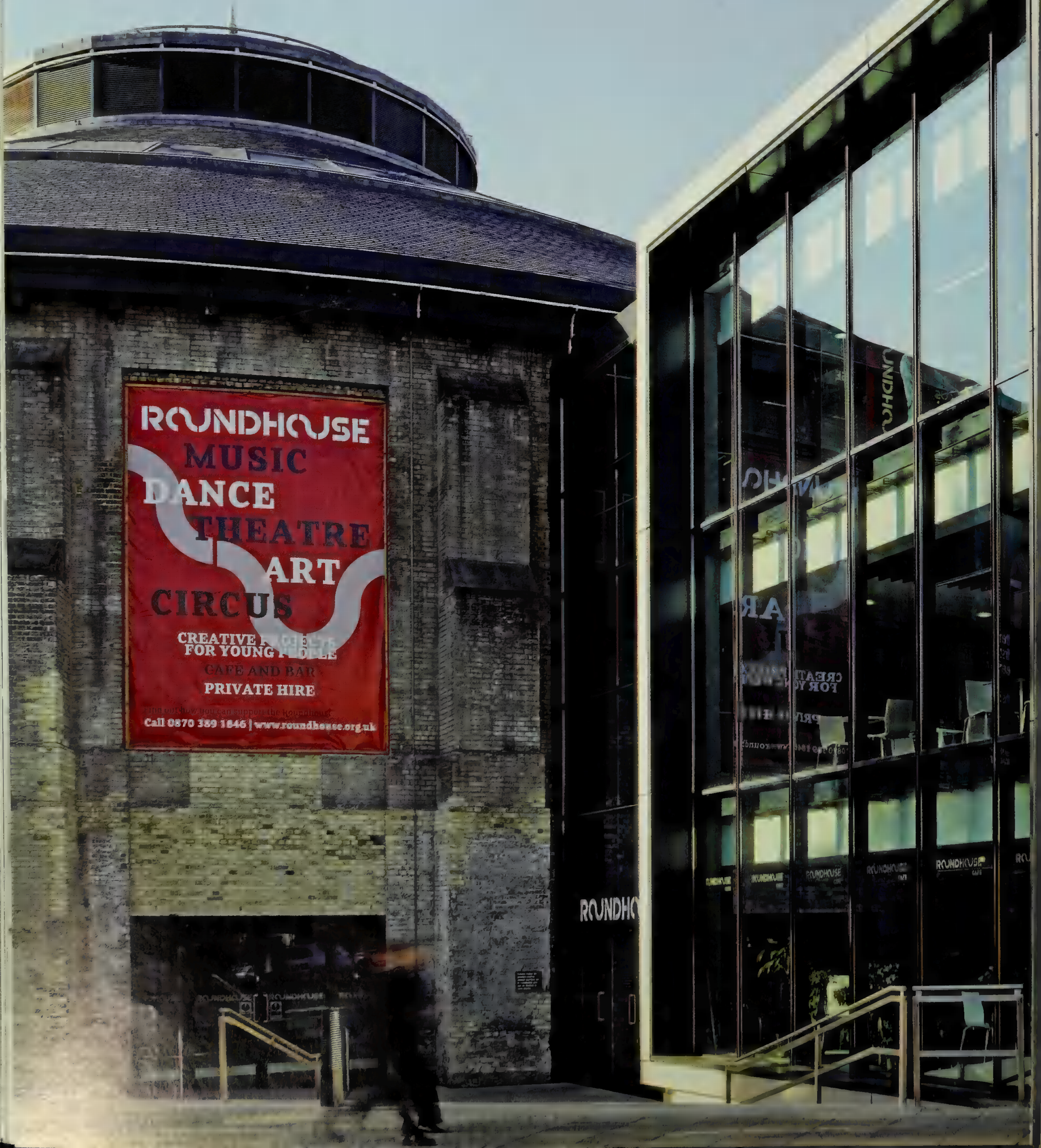
If Della Valle Bernheimer thought the interior was beyond problematic, it soon found out the exterior

(continued on page 230)



On the west side of the building, overlooking Beekman Place, a brushed-stainless-steel corner stair leads from the den to the exercise area and a study. Stainless-steel cables emphasize the verticality of the space.

After a short life as a railroad turning shed, the 1846 building became a gin warehouse (opposite, top). Once at the fringes of the city, the neighborhood grew increasingly dense (opposite, bottom). McAslan's glassy new wing contrasts with the old brick rotunda (this page).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John **McAslan + Partners** revives London's **ROUNDHOUSE**, a free-spirited performance venue with multiple past lives

By Sarah Amelar

Reincarnation has long been a way of life for the Roundhouse, a cylindrical building in the Camden section of north London. When the sturdy brick structure, designed by engineer Robert Dockray, went up in 1846, it was a state-of-the-art shed for servicing and turning steam locomotives. But its great turntable, capable of carrying 24 train engines at once, came to a halt less than a decade later as locomotives became too long to fit into the 157-foot-diameter rotunda. Gilbey's Gin, then newly founded, took over the shed, using it for the next half-century to warehouse barrels of booze. But the wild times really began after the gin-makers were gone: In 1964, playwright Arnold Wesker hit on the idea of turning the long-vacant and derelict Roundhouse into a populist performance venue, called Centre 42.

The place quickly became the raw-edged domain of experimental theater and music. Pink Floyd, Jimi Hendrix, the Doors, Jefferson Airplane, Chet Baker, David Bowie, and others commanded its stage, as did *Hair*, the scandalous *Oh Calcutta!*, and impromptu "happenings" (one with naked people slithering through Jell-O). "There was a constant fog of incense and dope and the strong smell of patchouli … extremely psychedelic," recalls one member of the Roundhouse's 1960s audience. Later, when punk rock struck London, the rotunda was again at the epicenter. But by 1983, a lack of funds closed Centre 42.

The brick-lined shed, with an interior ring of cast-iron columns and wrought-iron suspension rods soaring to a central roof lantern, lay vacant for a decade. Though the structure was landmark-protected and therefore not in danger of demolition, proposals to revive it—as a Black Arts Centre, for example, or a home for the RIBA drawing collection—failed.

Then, in 1996, retired toy magnate Torquil Norman bought the property for a reported £3.9 million ($6 million, at that time) and, forming the Roundhouse Trust, launched plans for an upgraded performance space and, in the vaulted undercroft beneath it, a creative center for people ages 13 to 25. Norman envisioned a place that would offer, free or at nominal cost, workshops on topics ranging from radio and TV production to sound mixing, photography, graphics, circus, and drama, as well as the use of a small auditorium. "To get to young people, you have to provide the facilities and let them do as they want," he told the local *Hampstead & Highgate Express*. "Those great big schemes delivered by civil servants don't work."

After hiring Foster+Partners to perform a feasibility study, the trust opened the project to competitive bidding to make it eligible for National Lottery funds. Through an interview process, John McAslan + Partners, a firm that later adaptively restored such historic buildings as Mendelsohn and Chermayeff's 1935 De La Warr Pavilion, won the commission. "In the interview," McAslan recalls, "I told Torquil the Roundhouse's rawness should be expressed, should shine through, in whatever was done—a viewpoint I knew he shared. I also said I didn't think the project should cost more than £10 or 11 million."

In the end, McAslan's scheme actually cost £30 million (approximately $56 million) to execute, keeping the industrial grittiness perceptibly intact, while restoring the 19,350-square-foot rotunda's spatial integrity and stealthily slipping in 21st-century technological and acoustic upgrades.

From the start, the architect impressed on Norman the need to acquire adjacent land parcels (which the trust ultimately did) for a new wing that would curve around part of the existing drum, housing spaces ancillary to the performance rotunda: administrative offices, restrooms, a restaurant, two cafés, the 120-seat auditorium, as well as an atrium foyer for the complex's main entry and grand new interior stair. As a performance venue, the Roundhouse had been a famously challenging place to bring equipment and crowds in and out. So solving the circulation in subtle yet effective ways—for the front and back of the house—was key.

One the scheme's most radical aspects entailed major earthmoving, giving the lower level and main performance rotunda spatially close but

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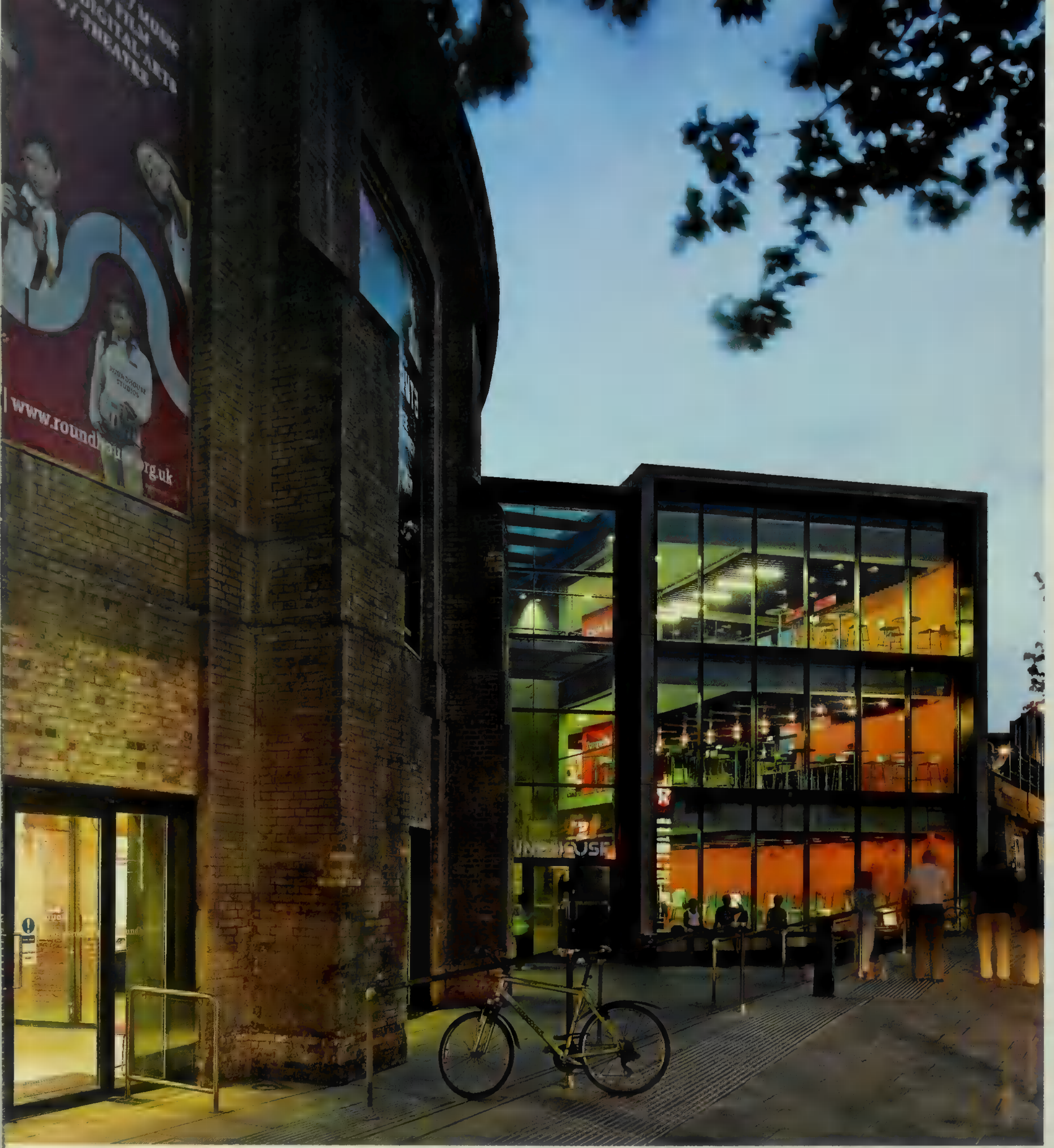
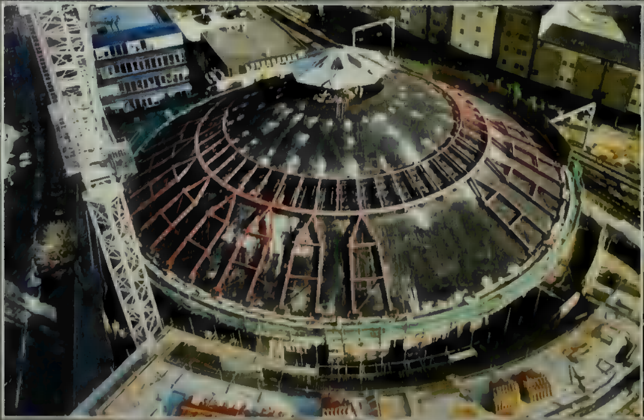
Project: *The Roundhouse, London*
Architect: *John McAslan + Partners—John McAslan, Mark Cannata, Adam Brown, Oliver Wong, Claire Sa, Don Orike, Graham Ford, Greg McLean, Siggi Nepp, Tina Kimninou, Nigel Muntzer, Mieke Tanghe, Eric Hallquist, Erica Cotton, Kevin Murphy, Jonathan Shaw, Ben Davidson, Bob Updegraff, Martin Harris*
Engineers: *SKM Anthony Hunt (structural); Buro Happold (m/e/p)*

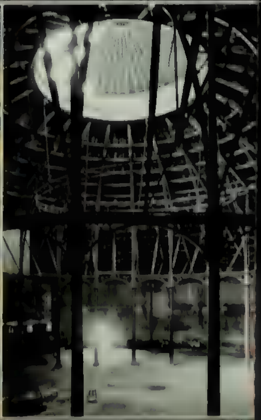


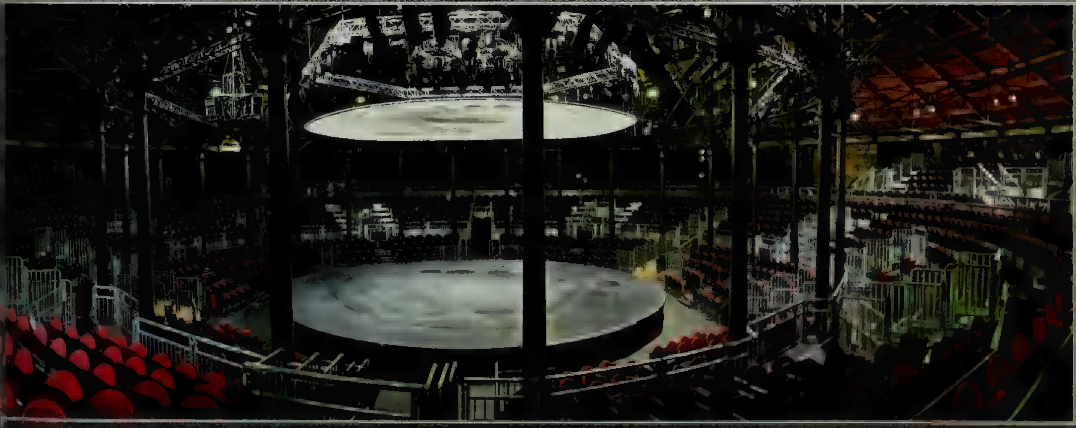
McAslan provided for potentially independent entry routes into the main performance space and Roundhouse Studios, respectively (left). For the rotunda interior (opposite), the architects recreated a halo of skylights, giving the openings double panes, separated by 3 feet of air space for acoustic isolation. Sunlight can now enter through this ring, as well as the central roof lantern. The original cast-iron columns and wrought-iron suspension rods remain, but do not support the new gantries, which hang from McAslan's conical web of steel (bottom, far left).

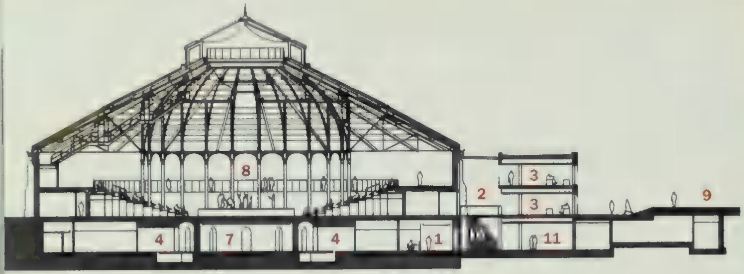
The architects retained the roof's original underside of exposed timber (far right) and topping of slate shingles, but between those surfaces, inserted acoustic materials and a steel structure (near right) to support new gantries and catwalks.

The seats, on pallets, are removable or reconfigurable, as for theater-in-the-round (opposite, bottom left). The undercroft's brick vaults (opposite, bottom right)—once ash pits to collect steam-engine waste—now form the Roundhouse Studios.



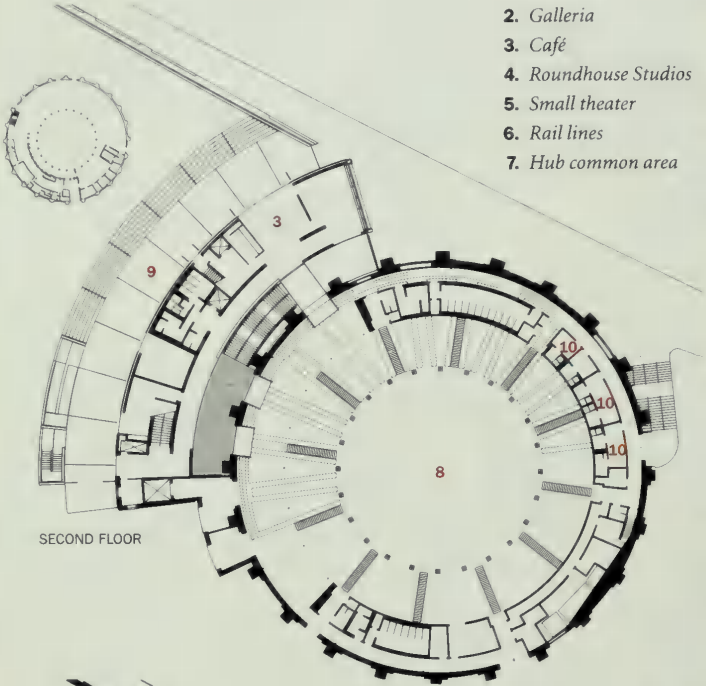






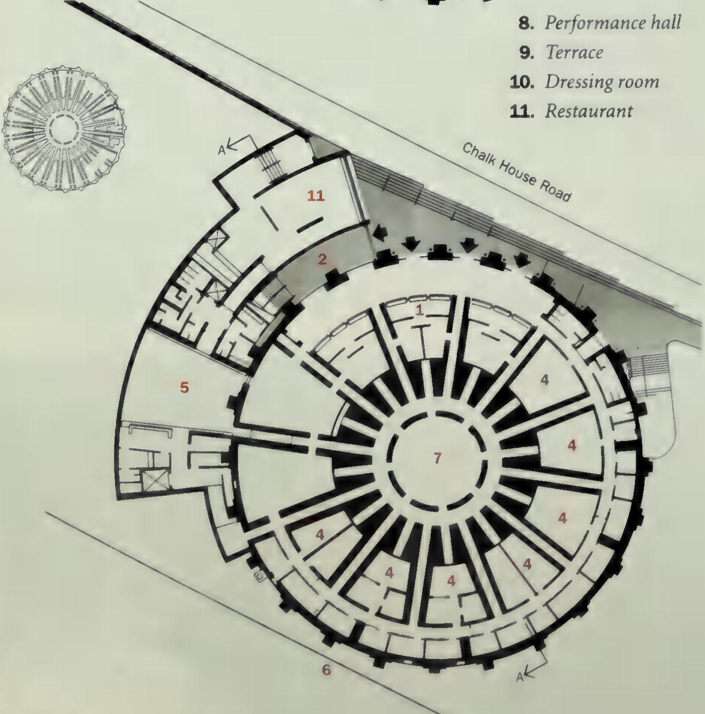
SECTION A-A

1. *Box office*
2. *Galleria*
3. *Café*
4. *Roundhouse Studios*
5. *Small theater*
6. *Rail lines*
7. *Hub common area*

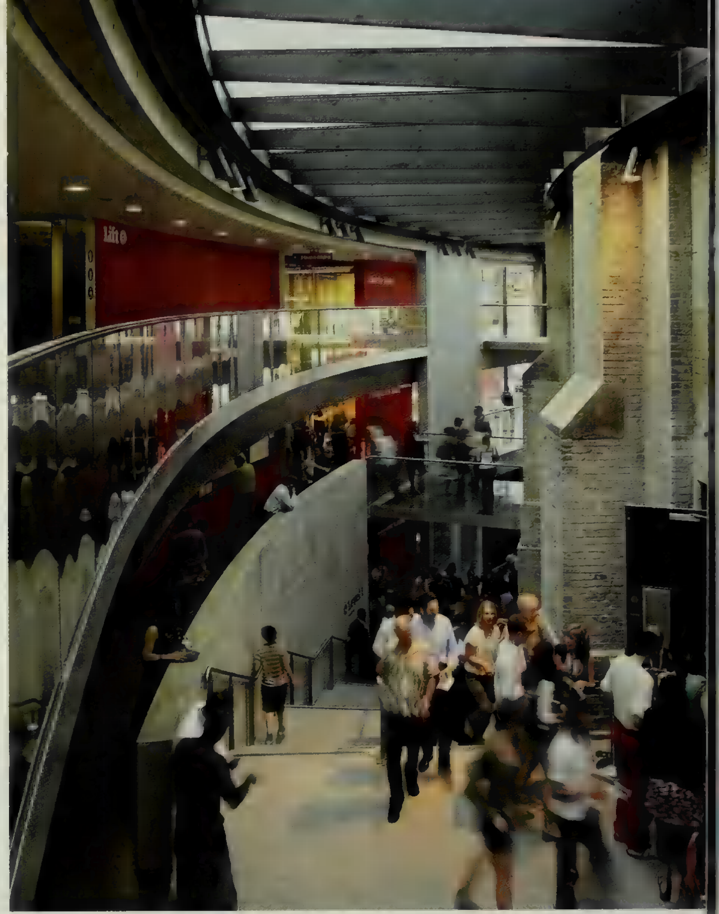


SECOND FLOOR

8. *Performance hall*
9. *Terrace*
10. *Dressing room*
11. *Restaurant*



[illegible] LEVEL (OCCUPYING FORMER UNDERCROFT)

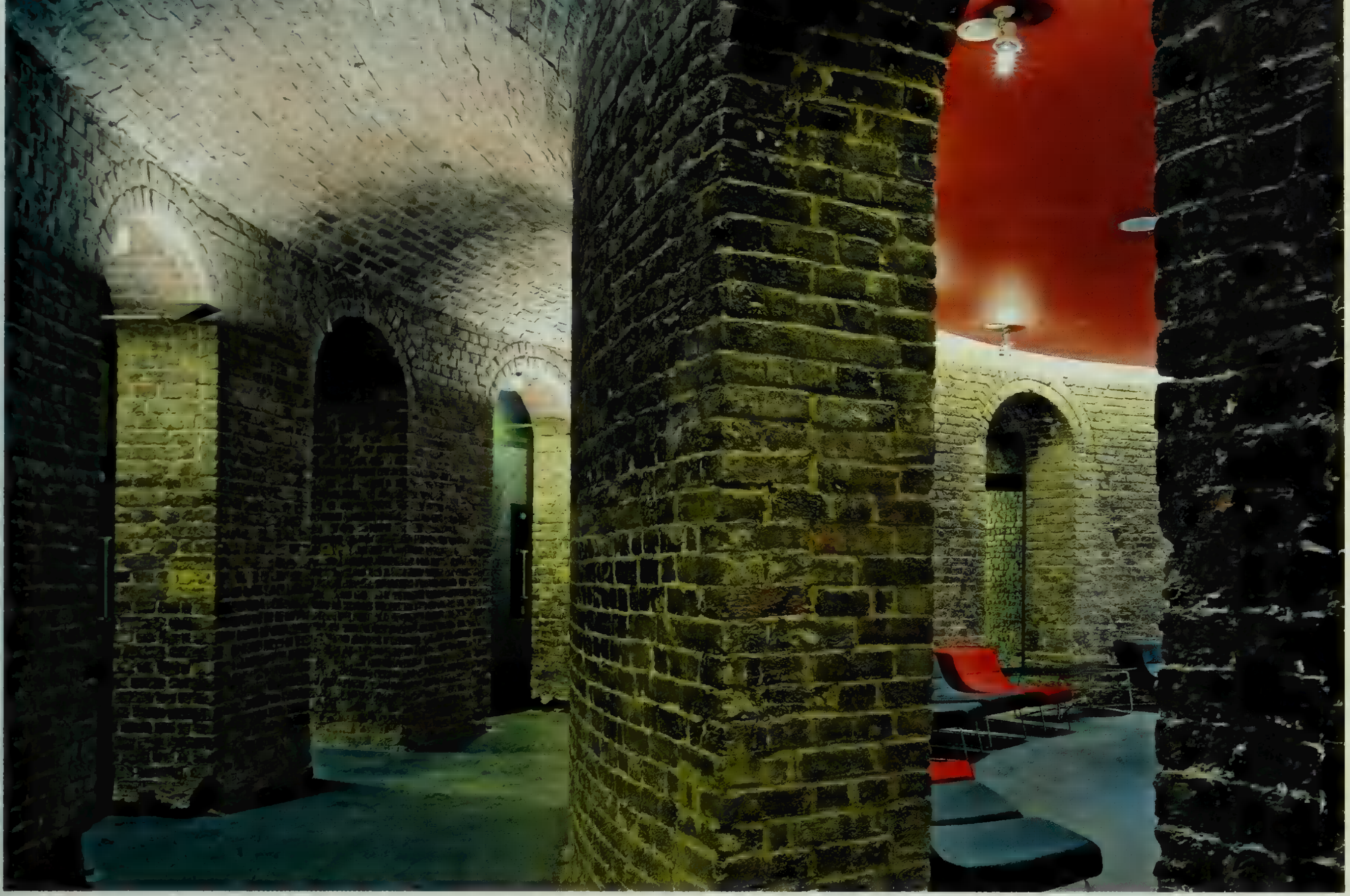


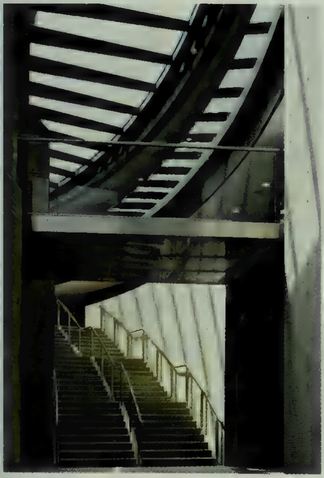
In the skylit galleria, the grand stair curves along the rotunda's outer brick shell (above and opposite, bottom left). McAslan carved into the vaulted undercroft (opposite, bottom right) to create the youth center (opposite, top).

potentially independent entry routes. Sited on sloped terrain, the great drum had always stood with its vaulted brick undercroft submerged below grade. By excavating the south, or downhill, side of that lower story, McAslan turned the subterranean realm into the ground floor, with entry to the youth center (called the Roundhouse Studios) directly from the sidewalk. There, in the radial brick vaults that had once received ash from locomotives and later, in the building's post-railroad era, only collected rats and stagnant water, the architect carved out a labyrinth of music practice rooms, recording studios, and editing suites. Because the undercroft was overstructured, McAslan was able to cut into the vaults, forming concentric circular pathways through the space and a common room at its hub, as well as a box office for the complex.

From outside, the new wing, wrapped in an understated curtain wall, appears quiet, almost like a backdrop, giving the original building center stage. But from inside, the addition, with its atrium galleria, gets more expressive. Here, the glass enclosure becomes a huge window onto the curving street, as the foyer's floor and wide, arcing stair (with the same York stone as the pavement) literally and metaphorically extend the sidewalk indoors.

Entered atop the grand stair, the restored main performance space is spectacular. McAslan kept the filigree of wrought iron in tact, while cleverly relieving it of structural loads. To carry the theater's new gantries and catwalks, the architects inserted a cone of steel members between the roof's exposed timber underside and its slate shingles (carefully reusing, or matching, the stone). Shaped like a giant lampshade, the web of steel rests on springs on the rotunda's 2.5-foot-thick perimeter walls. Between the roof's





original inner and outer surfaces, the team also added acoustic layers: MDF boards, insulation, and cementitious panels. Rubber pads, in addition to the springs, isolate the new roof acoustically. While the shed's massive brick shell had always provided noise insulation, even with the trains that still run right alongside it, the old roof let raucous rock concerts resonate throughout the neighborhood. Now sounds created here are both contained and enhanced.

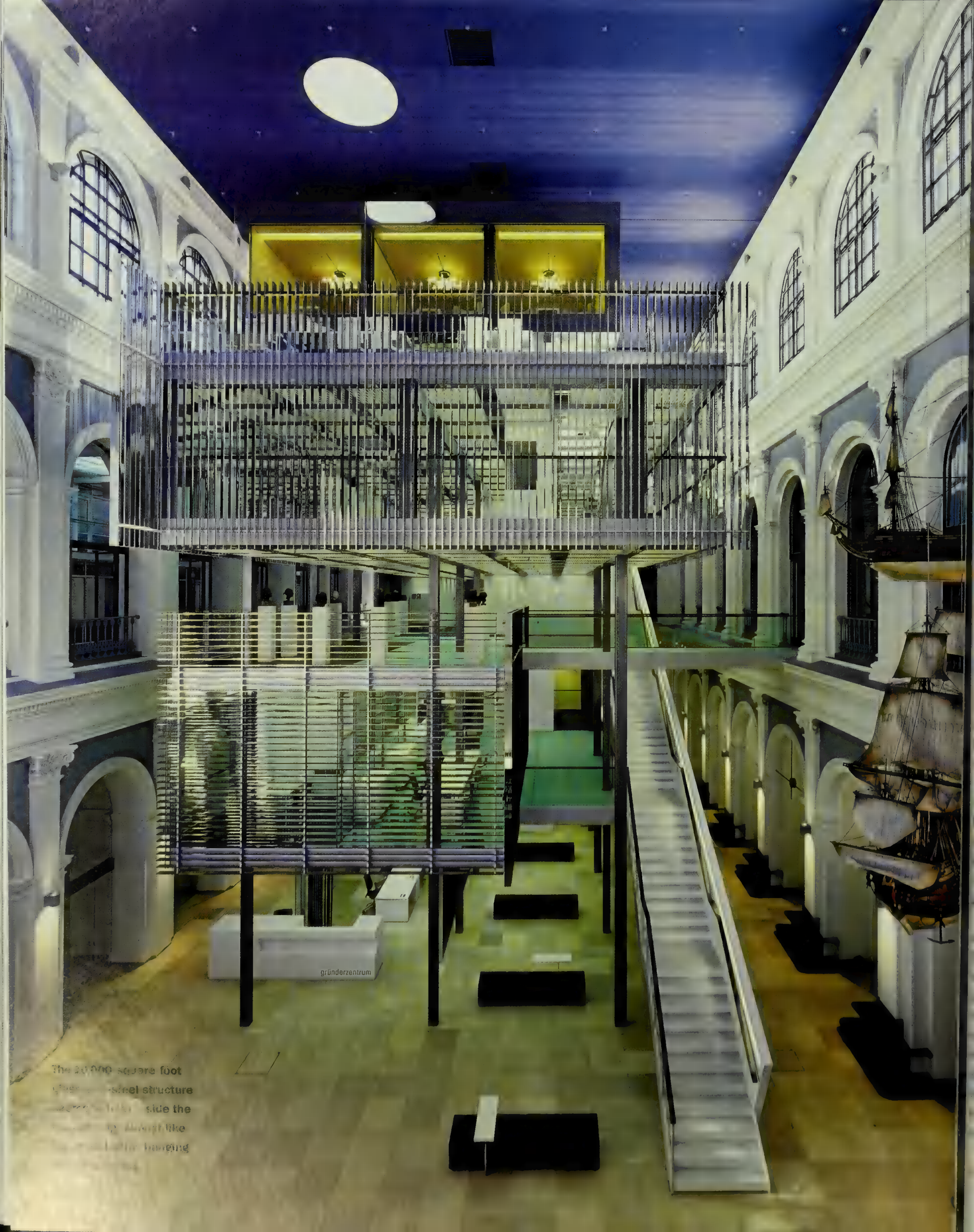
Also in its full glory is the interior ironwork, especially as light streams in through the central lantern and surrounding halo—a ring of skylights that had been covered for more than a century. While letting in the rays, the architects redesigned this band of glazing with acoustic adjustments and retractable black-out shades, and modified the lantern subtly to allow for air outtake vents. Retaining the flexibility and impromptu spirit of the original performance venue, the new seating and stage are reconfigurable. The management can entirely or partially remove the bleacherlike palettes of seats (to on-site storage) and set up a theater-in-the-round, a thrust stage, or myriad other options. A 9,600-square-foot mezzanine, a simple, permanent ring, now brings the rotunda's capacity to 3,000 standing or 1,700 sitting.

With the reborn Roundhouse already deeply embedded in its larger community, the youth center sparks with activity, engaging its participants in creative exchange with main-stage players and processes. Though Norman purchased the building himself and later seeded its endowment, he was determined that private donors, large and small, become directly involved in the creation and continued life of the venue. So 60 percent of the funding, an unusually high proportion, came from the private sector, with 40 percent from public sources: the Heritage Lottery Fund and Arts Council.

Mindful not to over-restore the Roundhouse, the architects left its bricks, for example, with timeworn unevenness and patches of discoloration. "There's nothing precious about the details," McAslan maintains. "It should always feel like a found venue and a joy to reuse." The approach was so lighthanded that some critics have found the architectural statement too modest. But there's a certain beauty in the familiar set right. "It's really the same place, but now quietly it all works—though people might not notice the particular changes," he says, acknowledging that the renovation's success lies partly in "its appearance of not trying very hard (while actually it was quite hard to solve)."

Far from the city's glamorous mainstream theater district, the Roundhouse remains a place where performers can kick up dirt, splash water, or swing from the catwalks. For all the sophisticated refitting, it's still, as McAslan project leader Mark Cannata puts it, "a maverick space." ■

Sources, see page 138. To rate this project, go to **architecturalrecord.com/projects/**.



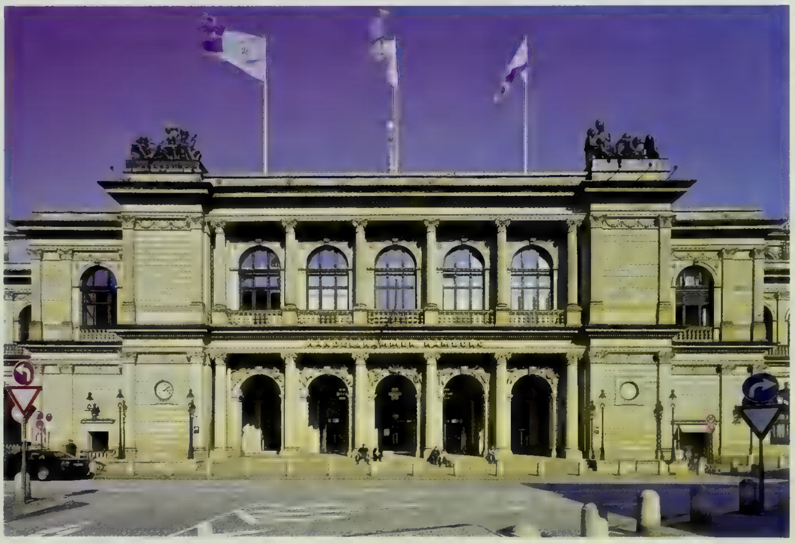
The 20,000 square foot glass-and-steel structure [illegible] side the [illegible] almost like [illegible] hanging [illegible]

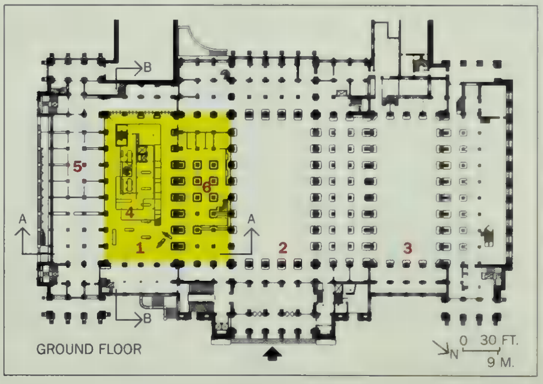
Behnisch Architekten inserted the gleaming **HAUS IM HAUS** within the neo-Renaissance fabric of Hamburg's Chamber of Commerce

By Farhad Heydari

Hidden inside Hamburg's colonnaded, Renaissance Revival Handelskammer, or Chamber of Commerce, a new glass-and-steel pavilion brings some modern swagger to halls that have long embodied the city's civic ethos and its centuries-old provenance as a Hanseatic trading center. Dating from 1841 and situated adjacent to an imposing Rathaus (city hall), the Chamber of Commerce is where the city's power players orchestrated Hamburg's modern-day rise to global shipping and maritime prominence. Yet officials of the forward-thinking organization realized they needed to update their otherwise staid commercial image. So when the city's stock market went electronic and moved out of one of the building's three commodious halls at the end of 2002, they decided to bring in new energy by adding a start-up-business assistance center, a business club, meeting rooms, and an area to display historic artifacts from the oldest commercial library in the world, which is housed in the building's recesses.

After holding a competition in 2003 that drew 600 entries, the Chamber of Commerce selected Stuttgart-based Behnisch Architekten to design a six-story insertion for the old building. Completed in March, the bold $8.2 million, reflective steel-and-glass project—called Haus im Haus (House-Within-a-House)—provides a jolt of Modern elegance that enlivens and casts a new light on its historic setting.





The Haus im Haus occupies one hall (plan, left) of Hamburg's 1841 Chamber of Commerce building (above).

1. *Hall 1*
2. *Hall 2*
3. *Hall 3*
4. *Start-up assistance*
5. *Welcome center*
6. *Insurance stock exchange*

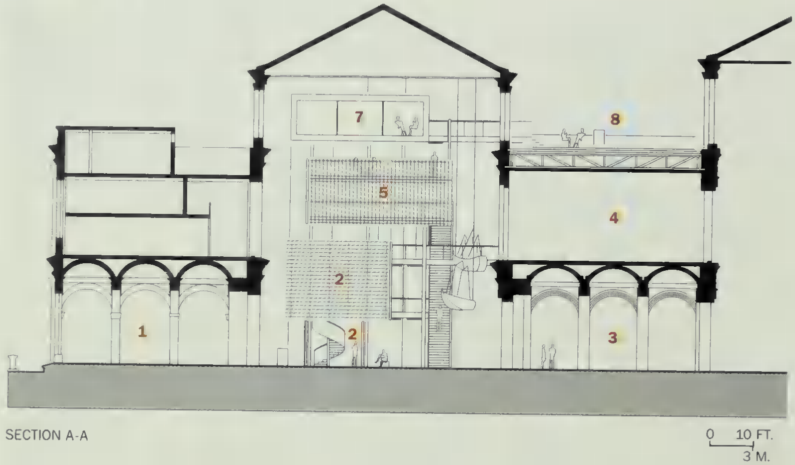
The architects designed the new structure as a series of stacked boxes defined by varying amounts of glass-and-steel enclosure. The ground floor, which is mostly open to the old hall around it, houses a welcome area and the start-up assistance center outfitted with bespoke furnishings, including painted-wood sitting platforms designed by Behnisch with adjustable-height work surfaces. Larger expanses of horizontally or vertically banded glass and metal enclose more space for the start-up center on the second floor. The third floor is home to a multipurpose room and an exhibition area, which continues on the fourth floor. A handsome restaurant occupies the fifth floor, while the business club and a bar-cum-lounge speckled with clubby English furnishings—including studded leather sofas, cream-colored shag rugs, antique chandeliers, and old masters paintings—are found on the sixth floor. A rooftop terrace atop a neighboring hall will enjoy views of the city's spires when it is completed in the future.

It wasn't easy, though, to get all this done, says the firm's principal, Stefan Behnisch. Many of the challenges were technical. "For example, we had to bring in building material through small openings in the old structure, which meant prefabricating as much as possible," says Behnisch. The architects also struggled with determining the condition of the existing

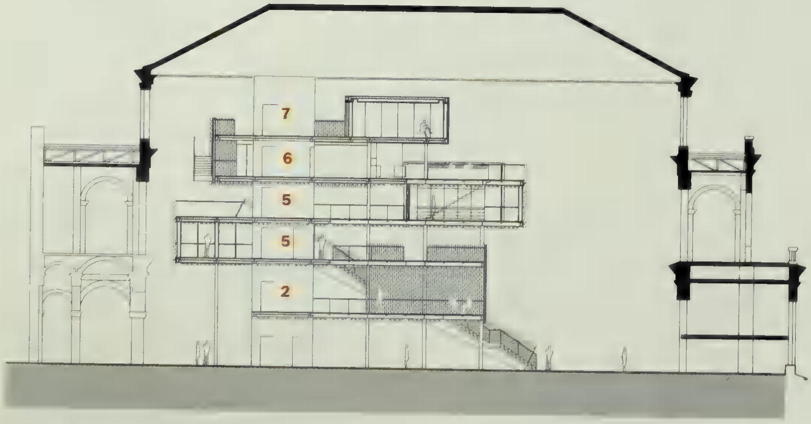
Farhad Heydari is an American journalist based in Hamburg.

Project: *Haus im Haus, Hamburg*
Architect: *Behnisch Architekten—Stefan Behnisch, principal; Martin Haas, partner in charge; Katja Knaus, project architect; Daniel Neves-Pimenta, Ohh Hie Gown, design team*
Engineers: *Wetzel & v. Seht (structural); TPlan (m/e/p)*
Consultants: *Nimbus Design (LEDs); Ulrike Brandi Licht (lighting)*

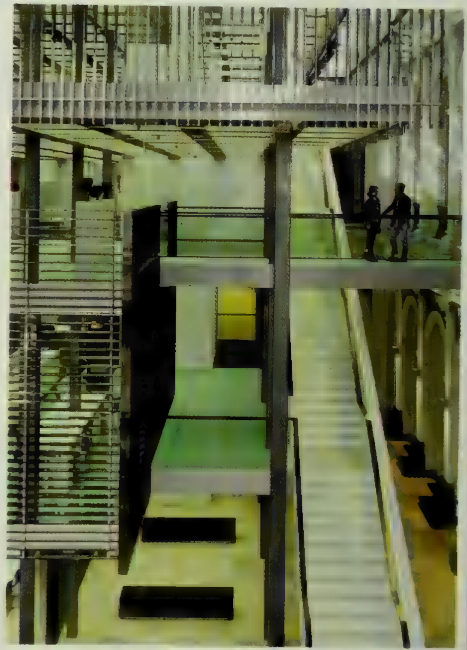
1. *Welcome center*
2. *Start-up assistance*
3. *Insurance stock exchange*
4. *Multipurpose*
5. *Exhibition*
6. *Restaurant*
7. *Bar/club/lounge*
8. *Roof terrace*



SECTION A-A

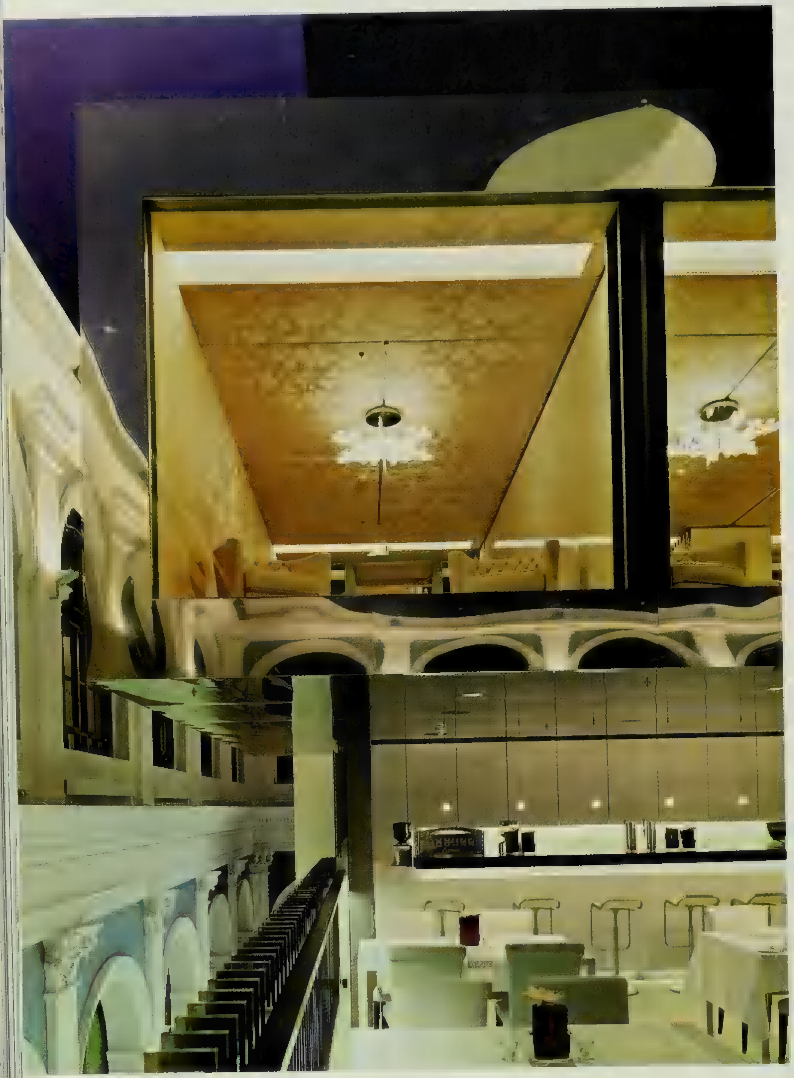


SECTION B-B

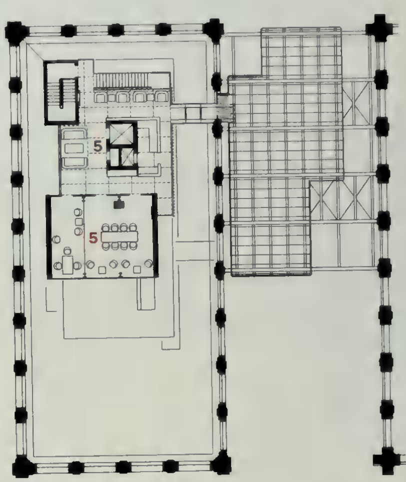


Behnisch originally envisioned the new structure as an exercise in transparency. But fire and other regulations made that difficult, so the firm combined clear and reflective materials, which give the surfaces a sense of "nonmateriality" that contrasts with the heavier Renaissance-style building all around it (right and above right). A start-up assistance center occupies space on the first and second floors (top right and opposite), where sitting platforms have adjustable-height work surfaces.

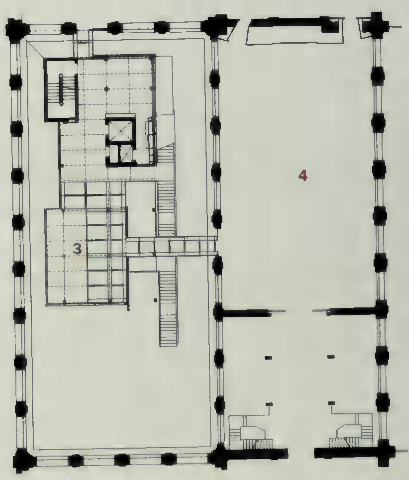
gründerzentrum



1. *Start-up assistance*
2. *Insurance stock exchange*
3. *Exhibition*
4. *Multipurpose*
5. *Bar/club/lounge*

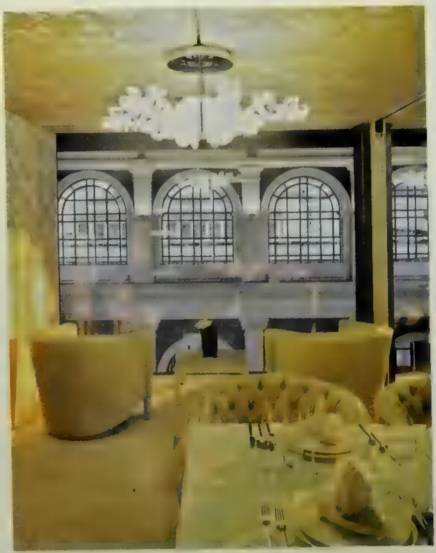


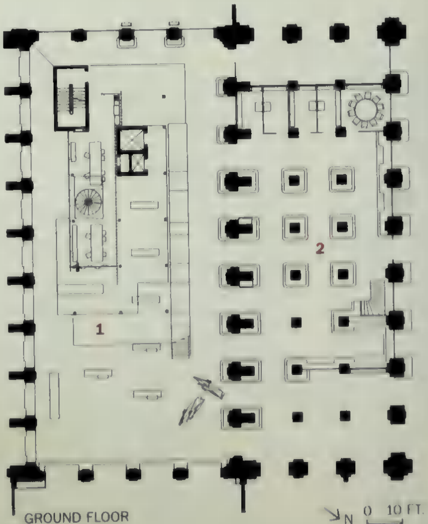
SIXTH FLOOR



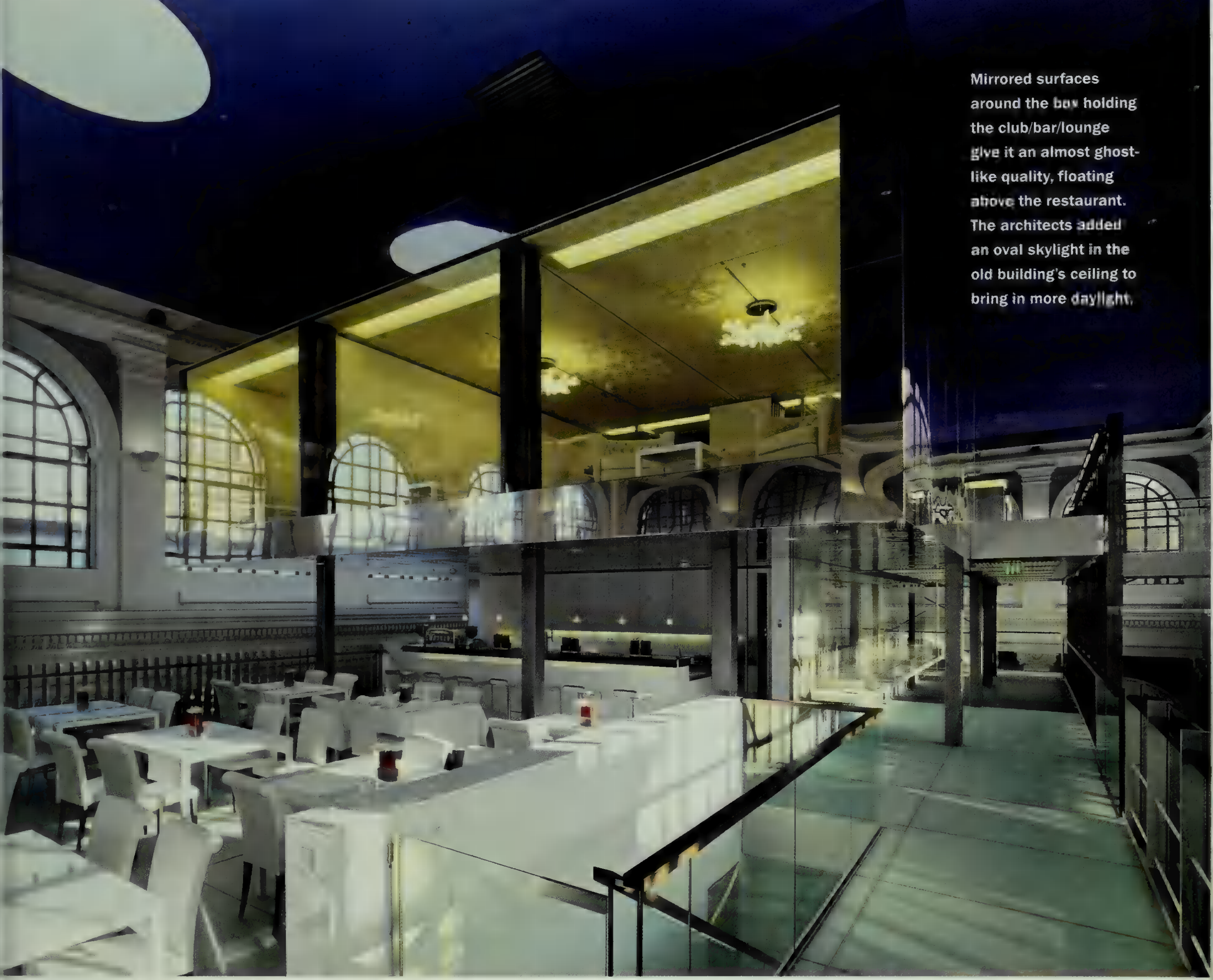
THIRD FLOOR

A restaurant (above) sits on the fifth floor, open to the grand hall and close to the old building's ornamented surfaces and cornflower-blue ceiling. Directly above the restaurant, a club/bar/lounge (right) offers a champagne-hued, cushy setting for members to entertain their business associates and friends.





GROUND FLOOR



Mirrored surfaces around the box holding the club/bar/lounge give it an almost ghost-like quality, floating above the restaurant. The architects added an oval skylight in the old building's ceiling to bring in more daylight.

building's foundations, which were built on oak piles. "We had to open up these spaces, examine them, and then drive the foundations for the new building through the basement of the existing building," Behnisch explains. And because big equipment couldn't be brought into the building, work had to be done more or less manually or with small equipment.

In terms of materials, too, Behnisch and his team confronted major dilemmas. Their initial plans called for an airy, transparent edifice fashioned from a motley of components, including high-tech plastics, chrome-covered aluminum panels, and tempered glass—materials that would be foils for the Renaissance-style setting. But fire and safety regulations pushed the architects in a different direction, and reflectivity usurped transparency as the overriding theme. Instead of being see-through, the new materials attain a sense of "nonmateriality" thanks to mirrored surfaces.

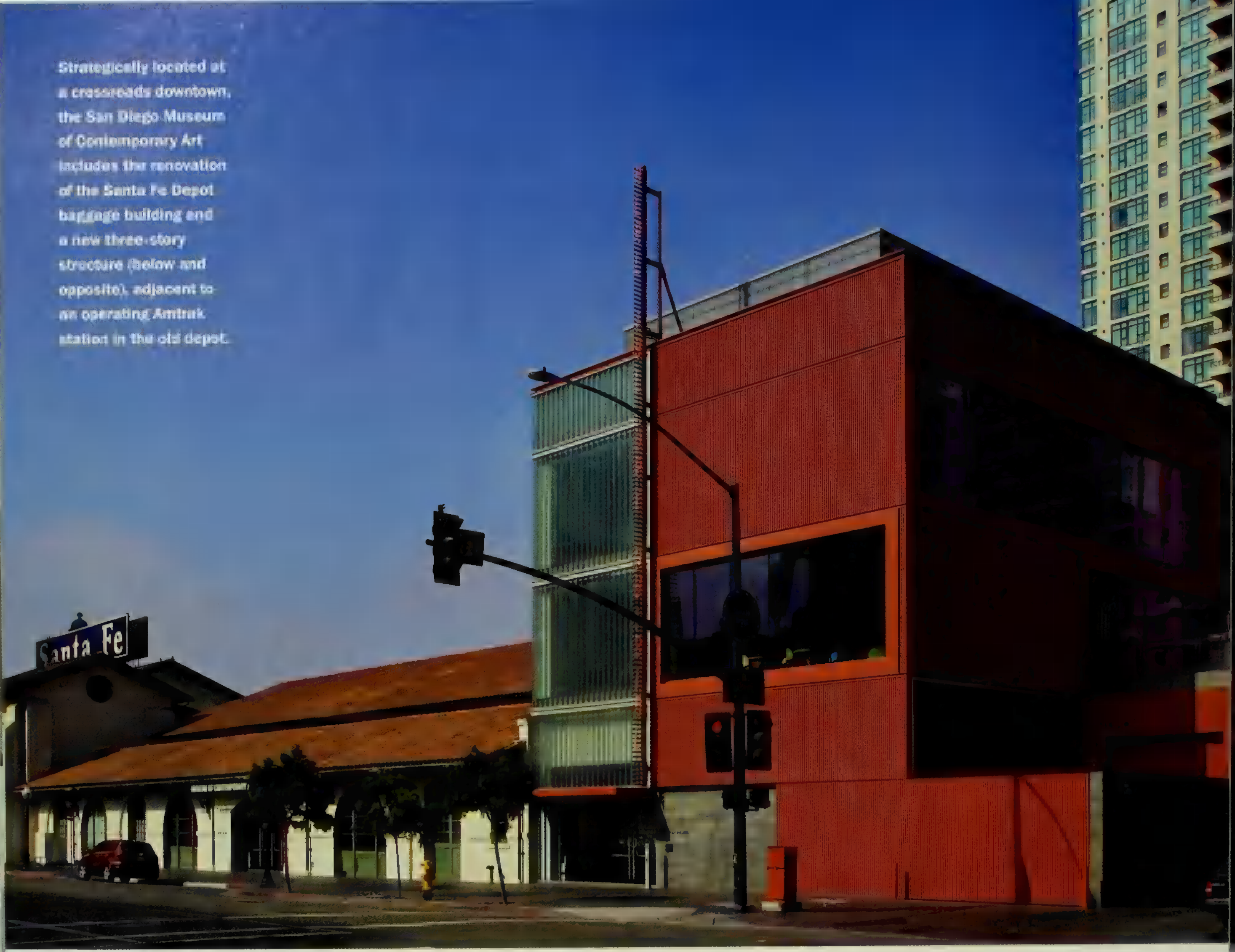
The architects also lost a battle over egress when the authorities insisted on a separate, enclosed fire stair. Initially, the Behnisch team thought people "could escape through the three bridges that connect the new structure to the existing structure," says Martin Haas, the firm's partner in charge of the project. Haas and his colleagues eventually tucked the stair into a concrete block at the back (south) of the new structure.

To give the interior spaces an ethereal quality, the team worked with a lighting manufacturer to develop a series of unusual LED panels (see page 184). Measuring 3 feet by 3 feet, the rectangular panels are ceiling-mounted and programmed by computer to mimic daylight by changing intensity. "The idea was to incorporate the quality of daylight—which captures the movement of clouds and changes in hues—instead of relying just on artificial light, which is strict and unforgiving," says Haas.

Set on 18 steel supports filled with concrete, the new structure rises dramatically 64 feet to nearly touch the textured acoustic cornflower-blue ceiling of the existing building, which was restored. Rules prohibited alterations to the building's exterior, but the architects were allowed to add a large oval skylight to the ceiling to bring in daylight.

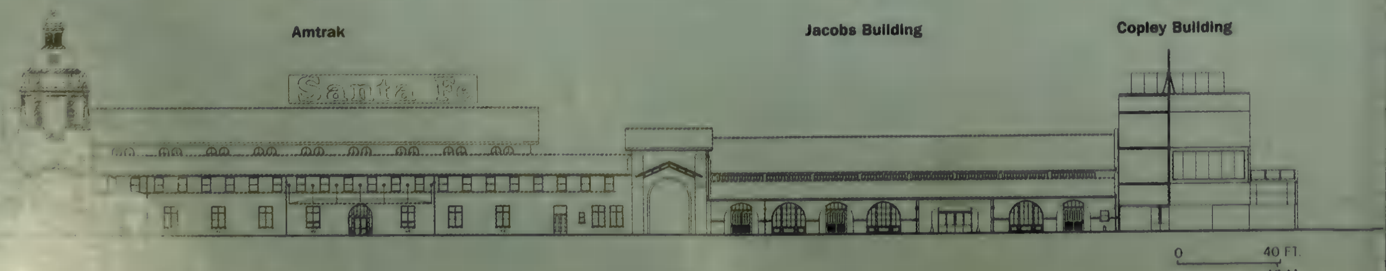
"There were a lot of people quite skeptical about this endeavor, saying how can you build a house into this beautiful hall," says Hans-Jörg Schmidt-Trenz, the Chamber of Commerce's chief executive officer. "But all these skeptical voices who thought it could never work are silenced the moment they walk in and see this building." ■

Sources, see page 138. To rate this project, go to **architecturalrecord.com/projects/**.



Strategically located at a crossroads downtown, the San Diego Museum of Contemporary Art includes the renovation of the Santa Fe Depot baggage building and a new three-story structure (below and opposite), adjacent to an operating Amtrak station in the old depot.

The Amtrak station, in the Santa Fe Depot; the Jacobs Building, a converted baggage building; and the Copley addition, viewed from the south (far left). A construction photo shows the depot's steel frame going up atop the arched concourse (near left).

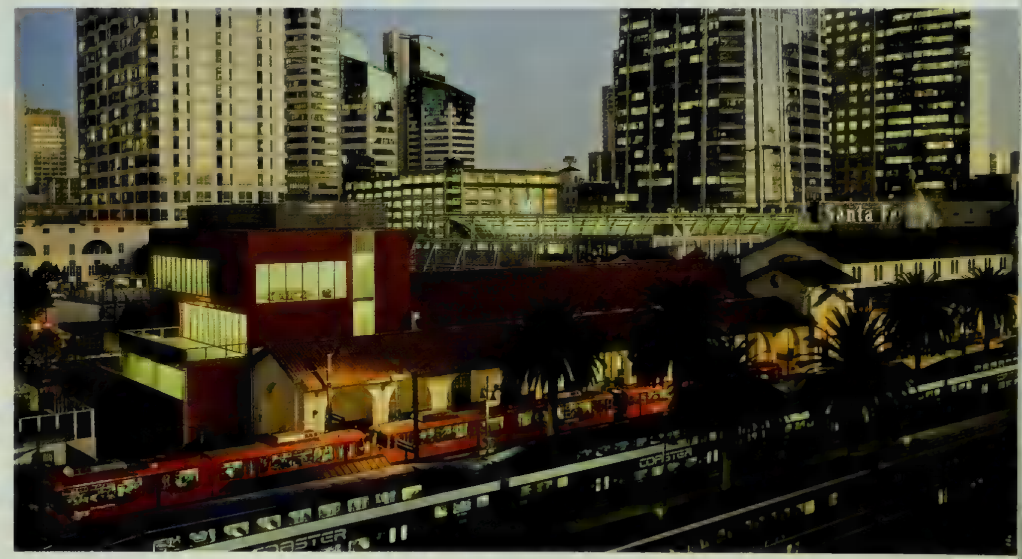


Gluckman Mayner Architects takes cues from railroad life in the caboose-red addition and renovated baggage building of the MUSEUM OF CONTEMPORARY ART SAN DIEGO

By Ann Jarmusch

The Museum of Contemporary Art San Diego, based in a converted, much-expanded landmark, the Ellen Scripps house, designed by Irving Gill in 1915 in idyllic La Jolla, may be as well known for its stunning, oceanside setting as for its bold, nationally acclaimed exhibitions. With the opening of expanded satellite galleries in a historic, former railway baggage building in downtown San Diego last January, the museum became an urban magnet, with its opening and early attendance exceeding projections.

The Joan and Irwin Jacobs Building, the renovated, low-slung, long-shuttered former baggage building, adjoins the city's beloved, more elaborate Santa Fe Depot, which faces Broadway near San Diego Bay. Both buildings, designed by Bakewell & Brown of San Francisco in the Mission-Spanish Revival style, opened in time for San Diego's 1915–1916 Panama-California Exposition; the depot has remained in continuous use since then.



Still filled with natural light that enters through clerestory and huge arched windows, the former baggage building stands between active train tracks to the west and busy Kettner Boulevard to the east. It first captured public and redevelopment authorities' attention a dozen years ago, when the museum's former chief curator used its vast spaces, supported by an exposed, steel structure unusual for its date, to stellar effect for several temporary installations.

Several years later, the museum was selected by the city's downtown redevelopment agency to restore and renovate the building for exhibition space. The museum plan included a controversial move that museum officials said was a deal breaker: To reserve the maximum area possible for art and new media installations, the museum needed to demolish an adjacent nonhistoric railway building and replace it with a contemporary, 13,680-square-foot addition—the new David C. Copley Building—to house offices, education rooms, meeting space, and Amtrak storage.

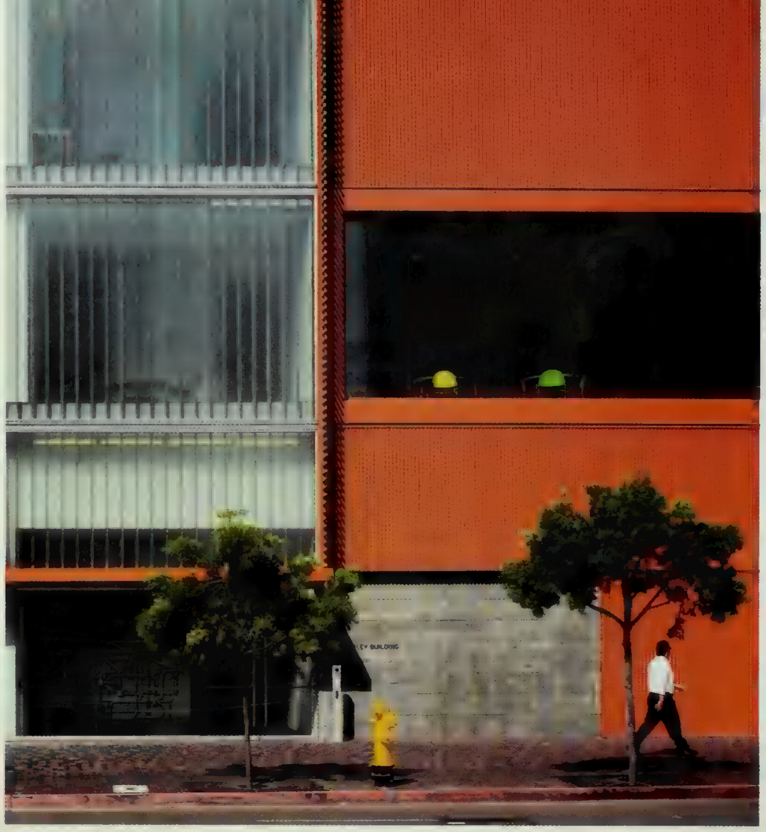
Hugh M. Davies, the museum's director, hired what he called his "dream team" for this two-part project: Milford Wayne Donaldson, FAIA, a San Diego–based preservation architect (who left the project after he was named California's state historic preservation officer); and Richard Gluckman, FAIA, of Gluckman Mayner Architects of New York. Donaldson's successor firm, Heritage Architecture & Planning, restored the baggage building's exterior and worked with Gluckman to keep the interior renovations, including a mandatory seismic retrofit, to a minimum.

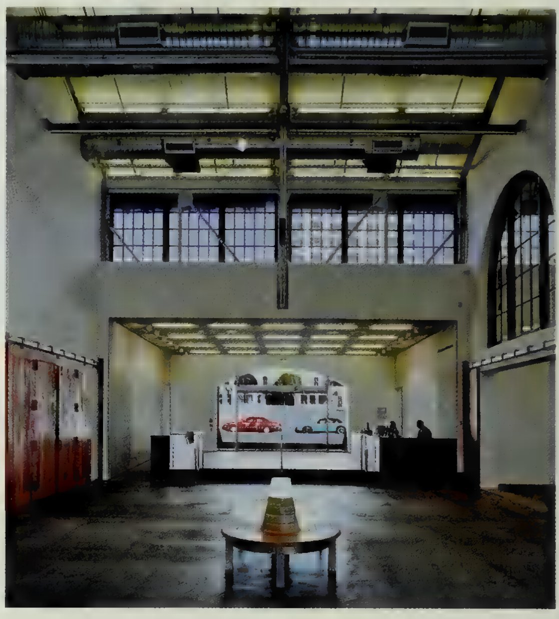
As with other historic buildings Gluckman has transformed, such as New York City's Dia Center and Pittsburgh's Andy Warhol Museum, he kept the vast interior spaces of the Jacobs as open as possible to maximize opportunities for installation artists. The height of the largest gallery, comparable to the size of a basketball court, peaks at about 38 feet; the exception is a small, jewel-box of a gallery with low ceilings and climate control.

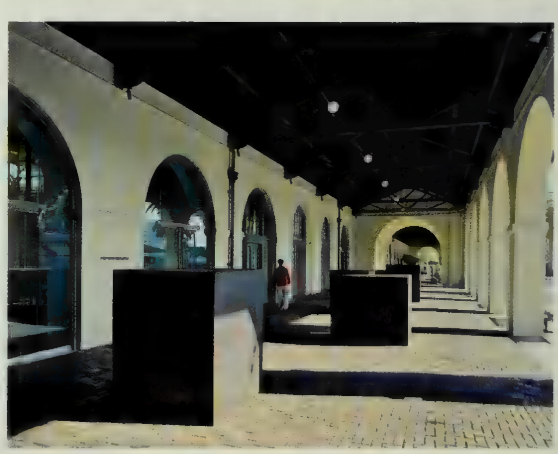
Elegant glass storefronts mark the museum entrance—without detracting from the historic facade—and the trackside exit to the west

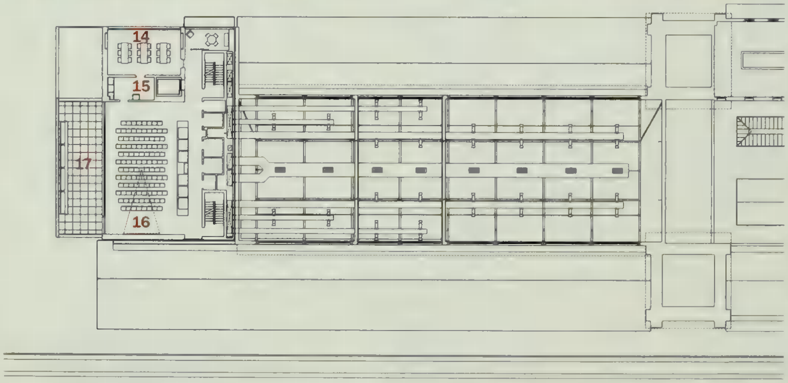
Ann Jarmusch is architecture critic for The San Diego Union-Tribune.

Project: *Museum of Contemporary Art San Diego, Jacobs Building and Copley Building, San Diego*
Architect: *Gluckman Mayner Architects—Richard Gluckman, FAIA, principal in charge; Robert White, project manager; Jimmy Counts, project architect; Benjamin Checkwitch, Robert Edmonds, Dean Young, Srdjan Jovanovic Weiss, design team*
Associate architect: *Heritage Architecture and Planning (formerly Architect Milford Wayne Donaldson)*
Engineer: *Arup (m/e/p, structural); Lintvedt, McColl and Associates (civil)*

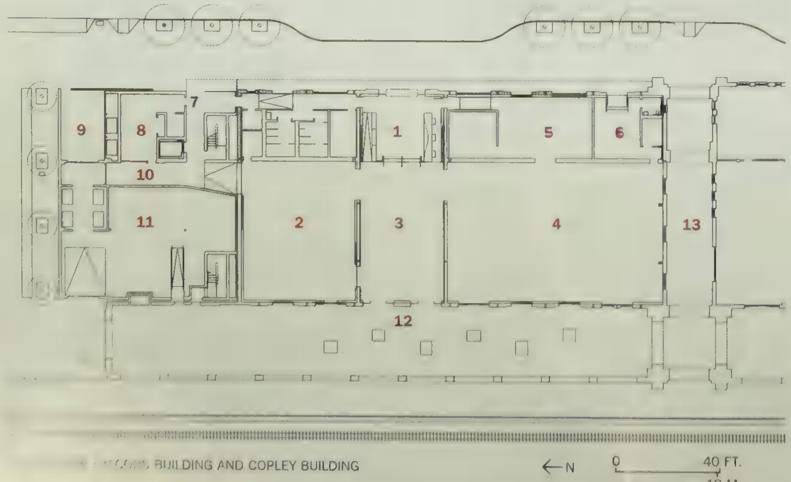








SECOND FLOOR / CLERESTORY LEVEL COPLEY BUILDING



[illegible] JACOBS BUILDING AND COPLEY BUILDING ←N 0 40 FT. 12 M.

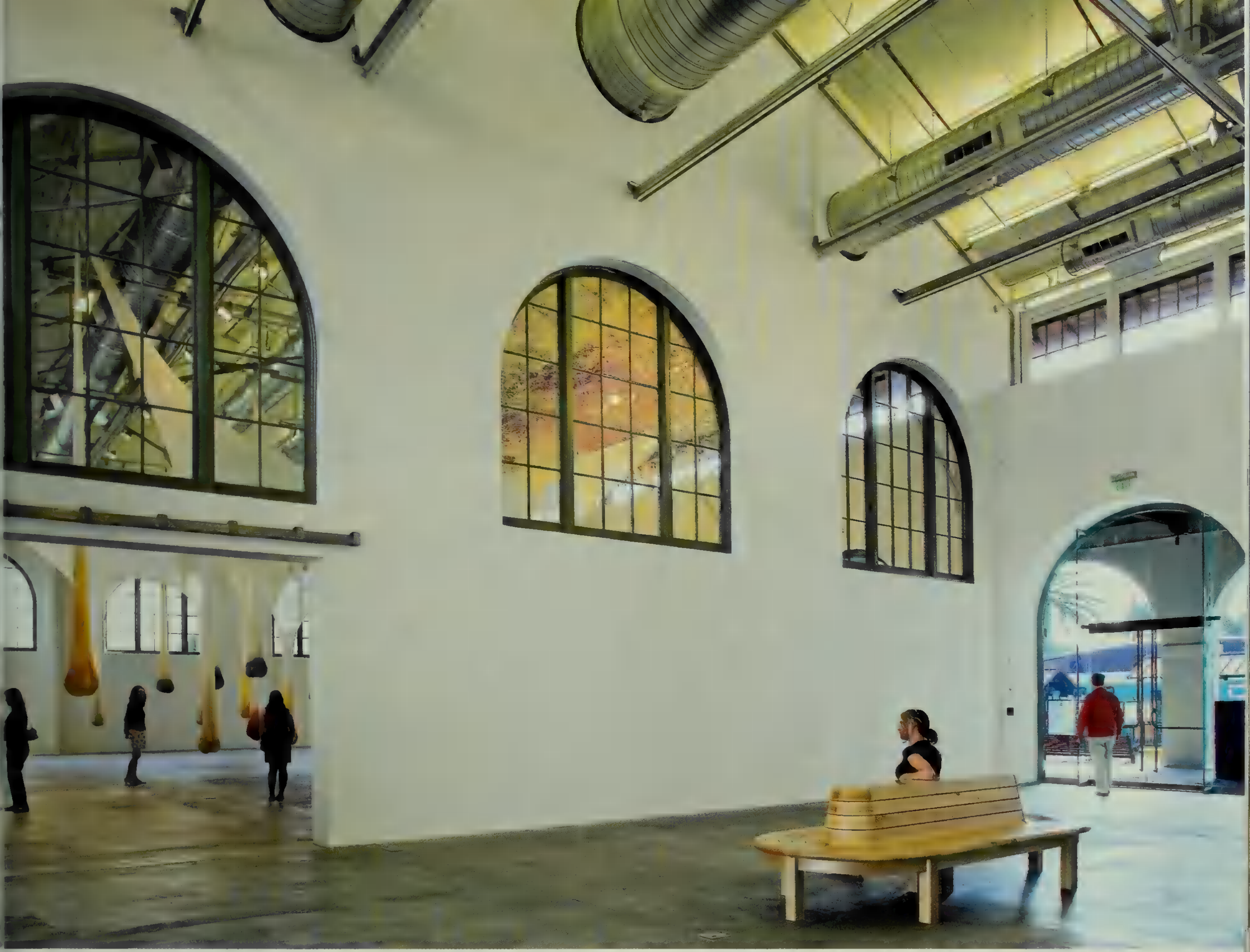
Jacobs Building

1. *Entry*
2. *Foster gallery*
3. *Strauss gallery*
4. *Farrell gallery*
5. *Wortz gallery*
6. *Caplan artist-in-residence studio*

Copley Building

7. *Entry*
8. *Art handling*
9. *Receiving yard*
10. *Service hall*
11. *Amtrak*
12. *Figi family concourse*
13. *Breezeway*
14. *Betlach Education room*
15. *Staging*
16. *Berglund room*
17. *Woods terrace*

The terra-cotta-colored steel panels of the new addition alternate with channel glass and clear glass windows (top left). The renovated galleries of the baggage facility, now the Jacobs Building (top right and opposite), open onto Kettner Boulevard. Currently, Ernesto Neto's work *Untitled* is on display. Richard Serra's *Santa Fe Depot*, a series of steel blocks, runs along the concourse facing the train tracks (above).



onto a brick-paved arcade, where Richard Serra placed his commissioned sculpture, a series of steel blocks that respond to the arcade's rhythm and proportions. Inside, three adjacent galleries, totaling nearly 14,000 square feet, including one just under 4,700 square feet, flow into one another. They can be closed off by huge, rolling wood doors with refined hardware that echo old railway buildings, but with no hint of the rustic vernacular.

Without fail, the architects respected the handsome historic building and the artists who experiment with it by retaining—celebrating, actually, in a city that has demolished most of its historic warehouses—the drama and flexibility of the original open, high-ceilinged spaces and durable concrete floors. A narrow central gallery, which doubles (as it once did for baggage handlers) as a throughway from street to tracks, is now glazed at both ends, offering views of the street and train tracks outside. One end serves as the museum's clean, modern new entrance, an intentional contrast to the historic facade. The other end is for exiting only, an inconvenient nod to security that requires visitors to walk around the long baggage building to reenter.

Gluckman, with Donaldson's backing, was bolder in designing its Modernist companion. This three-story structure almost flaunts its railroad setting, but playfully, via terra-cotta-colored, corrugated-steel panels (proposed initially to be painted caboose red). The panels alternate with iridescent-green channel glass and clear glass windows on a concrete base.

The juxtaposition of old and new, while required by preservation standards, stirred some public criticism when the concept was first presented. But now that it's a reality, some former protesters can see that Gluckman carefully designed the new building in relation to the scale, fenestration, and massing of its historic railway neighbors to the south, and a prominent old warehouse that's been converted to a restaurant and offices to the north. With the possible exception of the terra-cotta-colored siding (it matches the baggage building's newly cleaned, antique tile roof), this utilitarian box defers to the romantic grandeur of the historic landmarks nearby. (As a joyously blatant contrasting gesture, the artist Jenny Holzer, who frequently collaborates with Gluckman, designed a vertical "sign" that hangs on the facade, its provocative inscriptions constantly rolling in English and Spanish, and legible day and night.)

Best of all, for those who appreciate architecture and engineering as conceptual arts, Gluckman added intellectual value to this project: The new Copley Building inverts one of the key features of the former baggage building—its internally exposed steel structure—by wearing its structural steel and glass outside, on the street. ■

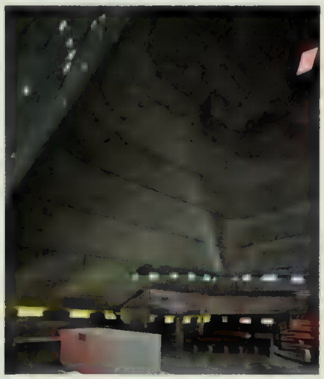
Sources, see page 138. To rate this project, go to **architecturalrecord.com/projects/**.

SOURCES/RESOURCES PROJECTS

EGLISE SAINT-PIERRE DE FIRMINY

Loire Valley, France

(page 108)



Sources

Altar: *Ciments Lafarge*

Surface pulverization: *Labo-France*

Flashing: *Soprema*

Glazing: *Saint-Gobain*

PAUL RUDOLPH PENTHOUSE

New York

(page 116)

Sources

Exterior steel finish: *Tnemec Paint*

Roofing: *Kemperol Liquid Applied Waterproofing System*

Hardware: *CR Lawrence (hinges); Industrial Expressions (pulls); Blum, Sugatsune (cabinet hardware)*

Cabinets and custom woodwork: *Joe Ginsberg*

Special surfacing: *Surell*

Flooring: *Ivan James (resilient); [illegible] (carpet)*

[illegible] *Upholstery*

[illegible] **furniture:** *[illegible]*

[illegible]

ROUNDHOUSE

London

(page 122)

Sources

Curtain wall: *EAG Aluminum (metal); Schuco (glass)*

Concrete: *Knight Build (fair faced)*

Roofing: *Flachdach Rhepanol FK membrane roofing (elastomeric)*

Windows: *Fendor Hansen (glazed steel frame)*

Doors: *Fendor Hansen (entrances, metal); Geze (sliding); IAC Industrial Acoustics (special)*

Acoustical ceilings: *Armstrong Geneva*

Paints and stains: *Dulux*

Paneling: *Decousitc Grooved MDF*

Floor and wall tile: *Domus Tiles*

Lighting: *Iguzzini; Concord; Erco; Philips*

Conveyance: *Kone (passenger elevator); Lodige (goods lift); Stanagh (dumbwaiter)*

HAUS IM HAUS

Hamburg, Germany

(page 128)

Sources

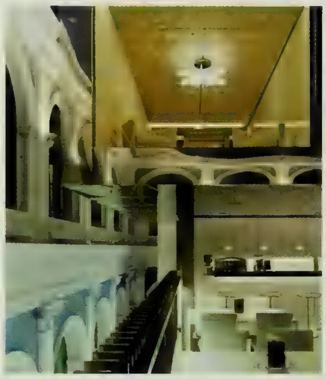
Structural system: *Baumann Metallbau GmbH*

Exterior cladding: *Baumann Metallbau GmbH (metal/glass curtain wall); Theo Urbach Bauunternehmung (concrete)*

Roofing: *Baumann Metallbau GmbH*

Glazing: *Baumann Metallbau GmbH (glass, skylights, insulated panel, plastic)*

Doors: *Baumann Metallbau GmbH (entrances, sliding); Fa. Holzschuh & Böhringer (sliding); Fa. Schörghuber (fire-control, security grilles)*



Hardware: *Dorma GmbH (closers); FSB (pulls); Effeff (security devices)*

Acoustical ceilings: *Sto Acoustics*

Demountable partitions: *Dorma Hüppe GmbH*

Cabinets and custom woodwork: *Holzschuh & Böhringer; Böhm GmbH; Tischlerei Harms*

Wall coverings: *JAB Anstoetz*

Special surfacing: *Vectogram*

Floor and wall tile: *Royal Mosa; Agrob Buchtal*

Carpet: *JAB Anstoetz; Tretford*

Furnishings: *Haworth, Arper, Vitra (office); Moroso, Poltrona Frau (chairs); MDF Italian (tables)*

Upholstery: *Wade Upholstery*

Lighting: *Nimbus Design (LED lighting); Lux Lichttechnik (interior ambient); Erco (downlights, controls)*

Conveyance: *Lutz Aufzüge*

Plumbing: *Opländer*

MUSEUM OF CONTEMPORARY ART SAN DIEGO

San Diego

(page 134)

Sources

Structural system: *International Iron*

Exterior cladding: *Pilkington Profilit (glass); Fabral, Ehmcke Sheetmetal (sheet metal)*

Roofing: *Johns Manville*

Windows: *ISEC (reconstruction of historic wood windows/storefronts); Kawaneer storefront system (aluminum)*

Glazing: *PPG Solarban 60*

Doors: *Grand View Glass and Metal (entrances); Door Component (hollow metal doors and frames); Marshfield Door Systems (wood); ISEC (sliding); Architectural Millwork (custom wood); McMaster-Carr (steel roller track and hangers for custom wood doors); Architectural Alternatives (stainless-steel pulls for custom wood doors); Total Door (fire-control, security grilles); Cornell Iron Works (overhead coiling doors)*

Hardware: *Schlage (locksets); Best Access Systems (cylinders); Hafele America (sliding door hardware); Stanley Hardware (butt hinges); Rixson Specialty Door Controls (offset pivot hinges, magnetic hold-opens); LCN Closers (closers); Von Duprin (exit devices); General Electric (security devices)*

Acoustical ceilings: *Armstrong World Industries*

Suspension grid: *Armstrong (Fineline system)*

Cabinets and custom woodwork: *ISEC; Montbleau & Associates*

Paints and stains: *Frazee*

Plastic laminate: *Formica*

Special surfacing: *U.S. Architectural Products; Corian*

Bathroom tile: *Nemo; Daltile*

Resilient flooring: *Wicanders*

Furnishings: *LUCE et studio (custom office furniture); Montbleau & Associates (custom reception furniture); Knoll (lecture room chairs); Herman Miller (conference room chairs); Vitra (office chairs)*

Lighting: *Litelab, Hubbell (exhibition); Lithonia (interior ambient); Modular International (downlights); Bega/US (exterior); Lutron (controls)*

Conveyance: *Mitsubishi*

Plumbing: *Kohler (toilets); Haws (drinking fountains)*

For more information on these projects, go to Projects at **architecturalrecord.com**.

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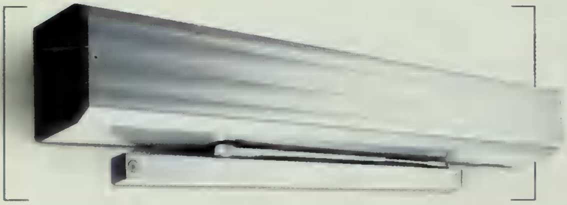

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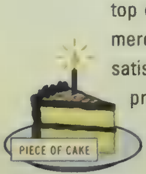

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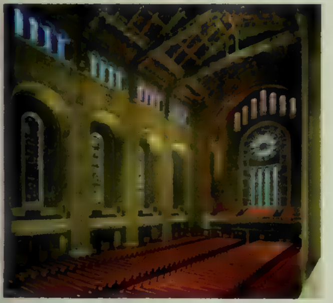
Not Only a Craft

As these projects illustrate, restoration is not just a technique; it takes research, thought, judgment, and design sensibility.

YALE UNIVERSITY ART GALLERY

New Haven, Connecticut

Polshek Partnership Architects sensitively brought back Louis Kahn's landmark design for the 1953 gallery that proved so significant in consolidating Kahn's stature as a major architect.



TEMPLE EMANU-EL

New York City

Beyer Blinder Belle researched and analyzed original materials in cleaning and restoring this epochal structure designed by Kohn, Butler, and Stein in 1930.

GRIFFITH OBSERVATORY

Los Angeles, California

Pfeiffer Partners and Levin & Associates have restored the Deco glamour of this tinseltown icon, designed by Austin and Ashley in 1935, while unobtrusively adding an underground addition.

To rate these projects and for additional information on restoration projects, go to Building Types Study at **architecturalrecord.com/bts/**.

By Suzanne Stephens

Of all the activities that fall under the rubric of preservation, restoration often gets short shrift among architects. They tend to dismiss work on existing historic artifacts as mere craft, a skill that doesn't require true creativity. They won't acknowledge that architects who bring buildings back to their once-pristine condition without changing their use, adding new structures or other noticeable architectural interventions, still need to make myriad imaginative (and creative) decisions in the service of history.

Fortunately, a number of architects welcome restoration work because of the investigation and exploration involved in uncovering past construction techniques. They turn into history detectives, figuring out why an architect long ago made a particular decision on such and such material or method of building, and how it can be repeated or simulated today without depriving the original of its authenticity.

Such is the situation with Polshek Partnerships' sensitive and straightforward restoration of Louis Kahn's architecturally paradigmatic Yale University Art Gallery of 1953 in New Haven, Connecticut. For example, the architects had to replace outdated track lighting with a new type that could be threaded through the famous tetrahedral ceilings. Then they discovered the new scheme was akin to what Kahn had originally specified, and which had subsequently changed.

Beyer Blinder Belle's meticulous restoration of Temple Emanu-El, the majestic Romanesque-style synagogue that Kohn, Butler, and Stein designed in 1930 on New York's Fifth Avenue, again shows how much architects can contribute through forensic analysis. In cleaning up and restoring the landmark building, Beyer Blinder Belle collected scores of documents, plans, and descriptions by the original architects, along with construction photographs, to determine how to recover the aura of this 75-year-old structure.

For its part, Pfeiffer Partners, formerly the L.A. office of Hardy Holzman Pfeiffer Associates, working with Levin & Associates, introduced a discreet intervention while restoring the iconic Art Deco Griffith Observatory in Los Angeles. The architects brought back the luster of the observatory, designed in 1935 by Austin and Ashley, while adding a 40,000-square-foot expansion underground. (Fortunately, their restoration work was spared the ravages that swept through Griffith Park early last month.)

These efforts should encourage more architects to embrace the thoughtful preservation of architecture's legacy—without feeling their creativity is being hampered. The problems faced are still about design. ■

One: YALE UNIVERSITY ART GALLERY

New Haven, Connecticut

Polshek Partnership Architects restores utility and flexibility to Louis Kahn's venerated icon without sacrificing its "tough elegance."

By Joann Gonchar, AIA

Architect: *Polshek Partnership Architects—Duncan Hazard, AIA, partner in charge; James Polshek, FAIA, Richard Olcott, FAIA, design partners; Steven Peppas, AIA, project manager; Lloyd DesBrisay, AIA, Robert Condon, AIA, project architects; Gary Anderson, AIA, senior technical designer; Louis I. Kahn, original architect*
Client: *Yale University*
Consultants: *Robert Silman Associates (structural); Altieri Sebor Wieber (mechanical); Fisher Marantz Stone (lighting)*
Media lounge design: *Joel Sanders Architect*
General contractor: *Barr & Barr*

Size: *39,620 gross square feet*
Cost: *$44 million*
Completion date: *December 2006*

Sources
Window wall: *Wausau*
Exterior masonry: *Glen-Gery Brick*
Concrete masonry units: *Smithtown Concrete*
Doors: *Fenevations; Ellison; Algoma Hardwoods*
Pogo walls: *Staples & Charles*
Lighting: *Bega; Lighting Services; Zumtobel; Nulux; Columbia; Lightolier; Design Plan; Exterior Vert*
Lighting controls: *Lutron; Square D*

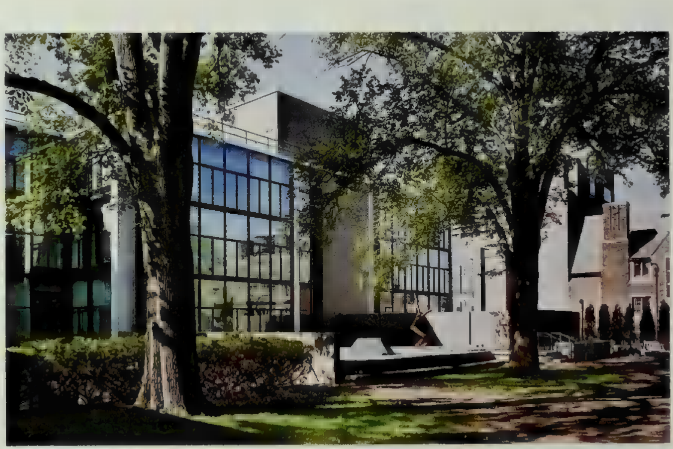
To rate this project and for additional information, go to Building Types Study at architecturalrecord.com/bts/.

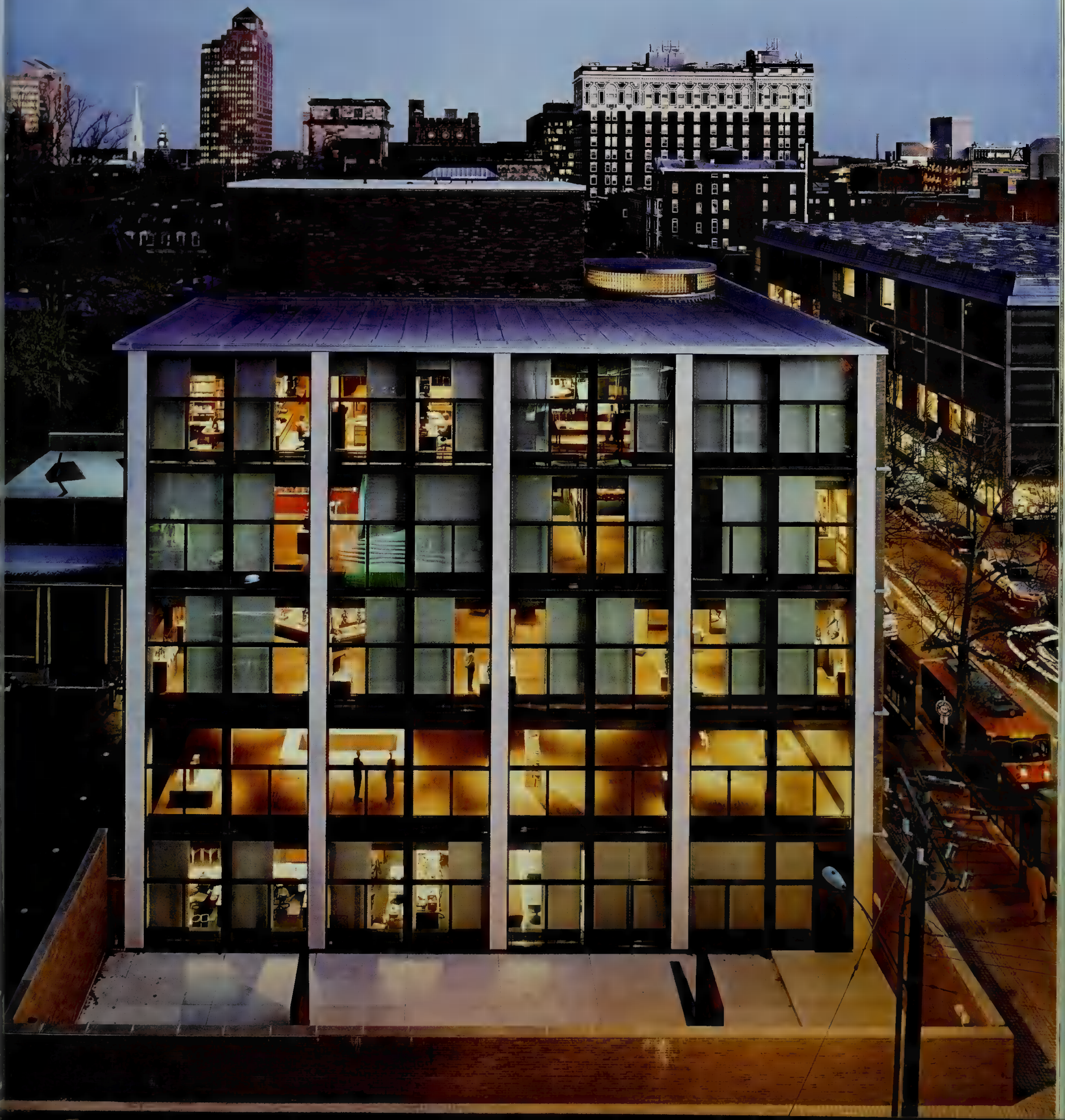
When the Yale University Art Gallery first opened in 1953, this magazine included it in a roundup of new art museums [RECORD, January 1954, page 167]. Calling it a "working museum," the paragraph-long article mentioned the building's exposed-concrete construction and the presence of its unique tetrahedral ceilings. However, the piece did not anticipate that the gallery would come to be thought of as architect Louis Kahn's first significant institutional project, widely admired not only for its engineering innovations and treatment of materials, but also for its pure geometry, flexible open plan, and handling of light.

Program

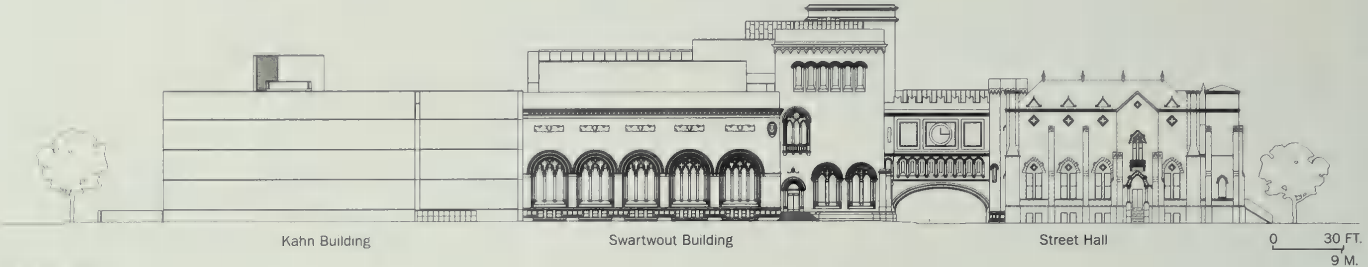
Paradoxically, over the decades, as Kahn's reputation grew, the building was much changed by unsympathetic alterations. For example, fixed partitions multiplied to create space for offices, storage, classrooms, and other functions. But, as part of a $44 million renovation of the building, completed in December 2006, Polshek Partnership Architects and its consultants sought to return the exhibition spaces to their original loft-like and light-filled state. The work also included upgrading the building's infrastructure to meet current museum standards, and replacing the elegant, but thermally problematic, west and north window walls.

The restoration is one piece of a larger project that includes renovation of the older Swartwout and Street buildings, which are contiguous with Kahn's. The ultimate goal of this ongoing effort is to make more of the gallery's vast and eclectic collection accessible to curators, students, and the public. By installing a state-of-the-art storage and archival system and relocating many back-of-house functions off-site, eventually all three buildings will be largely dedicated to gallery space. "Encountering original

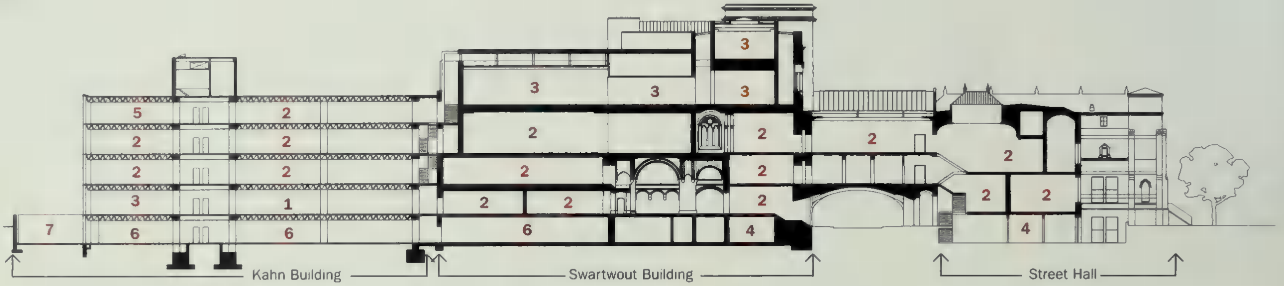




The renovation included replacement of the window walls with an aluminum system that matched the originals' profiles almost exactly. On the west side of the building, a submerged outdoor sculpture court, long roofed over, was uncovered and restored. The gallery is located across the street from one of Kahn's last significant buildings, the Center for British Art.

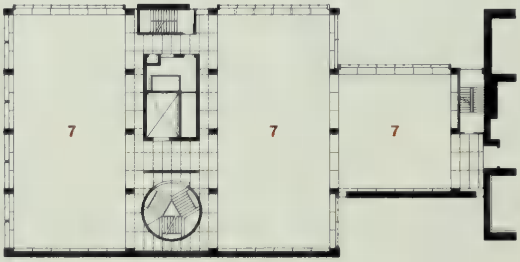


SOUTH ELEVATION

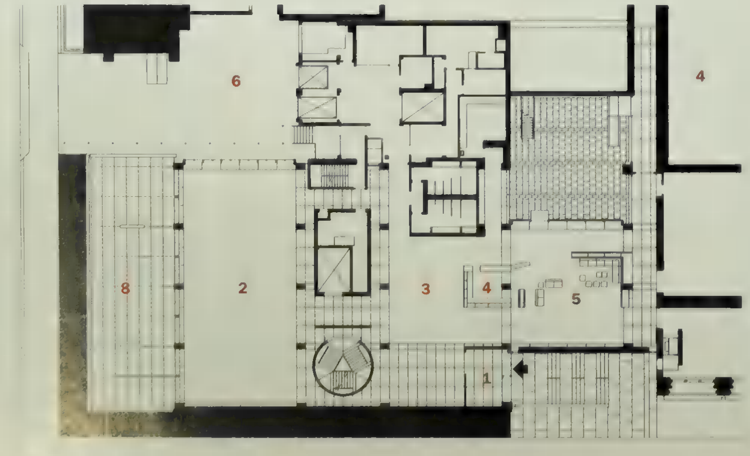


EAST-WEST SECTION

1. *Lobby*
2. *Permanent exhibits*
3. *Temporary exhibits*
4. *Education*
5. *Prints and drawings study room*
6. *Collection storage and management*
7. *Sculpture court*



TYPICAL FLOOR



FIRST FLOOR

1. *Entry vestibule*
2. *Temporary exhibits*
3. *Lobby*
4. *Information desk*
5. *Media lounge*
6. *Loading dock*
7. *Permanent exhibits*
8. *Sculpture court*

The Kahn building's typical floor has two rectangular galleries flanking a central core. A smaller gallery, square in plan, connects to the neighboring Swartwout building, which in turn connects to Street Hall. The university has plans to devote almost all of the space in these three contiguous buildings to exhibitions.

works of art is what it is all about," says Jock Reynolds, gallery director.

Solution

As RECORD noted 50 years ago, one of the building's most distinctive features is its tetrahedral ceilings, which, although muscular, seem to float overhead. These poured-in-place concrete elements integrate the mechanical systems with the building's structure and make possible expansive and flexible galleries unencumbered by columns.

Although the ducts are partially visible through the ceiling coffers, they are practically inaccessible. Therefore, the renovation designers only cleaned the ductwork above the galleries, leaving it intact. But in the building's central bay (the area that contains the iconic cylindrical stair along with the elevator and bathrooms), there is a conventional flat slab. Here they replaced the ductwork, added dampers, and modified the zoning to bring the systems to current museum-temperature and humidity-control standards.

Replacement of the gallery

lighting was also a puzzle. The original, a precursor to modern-day track systems, had been designed by Richard Kelly and specially fabricated for the gallery by Edison Price. Despite its pedigree, the system was worn out and no longer complied with code, according to Hank Forrest, a senior associate principal for lighting consultant Fisher Marantz Stone.

To replace the obsolete system, the architect and lighting designer specified short and flexible sections of track that could be threaded through the ceiling hollows. They put this track in every bay, instead of replicating the alternating bay arrangement of the existing building. Only later did they discover that they had duplicated the configuration called for in Kahn's original design documents.

The new lighting design provides more flexibility for the display of artwork and allows curators to maintain proper lighting levels without fixtures that drop below the bottom of the ceiling. "It creates a cleaner look," says Forrest.

The spare furniture in the lobby media lounge is made of ebonized oak and takes its cues from the architecture's bold forms.

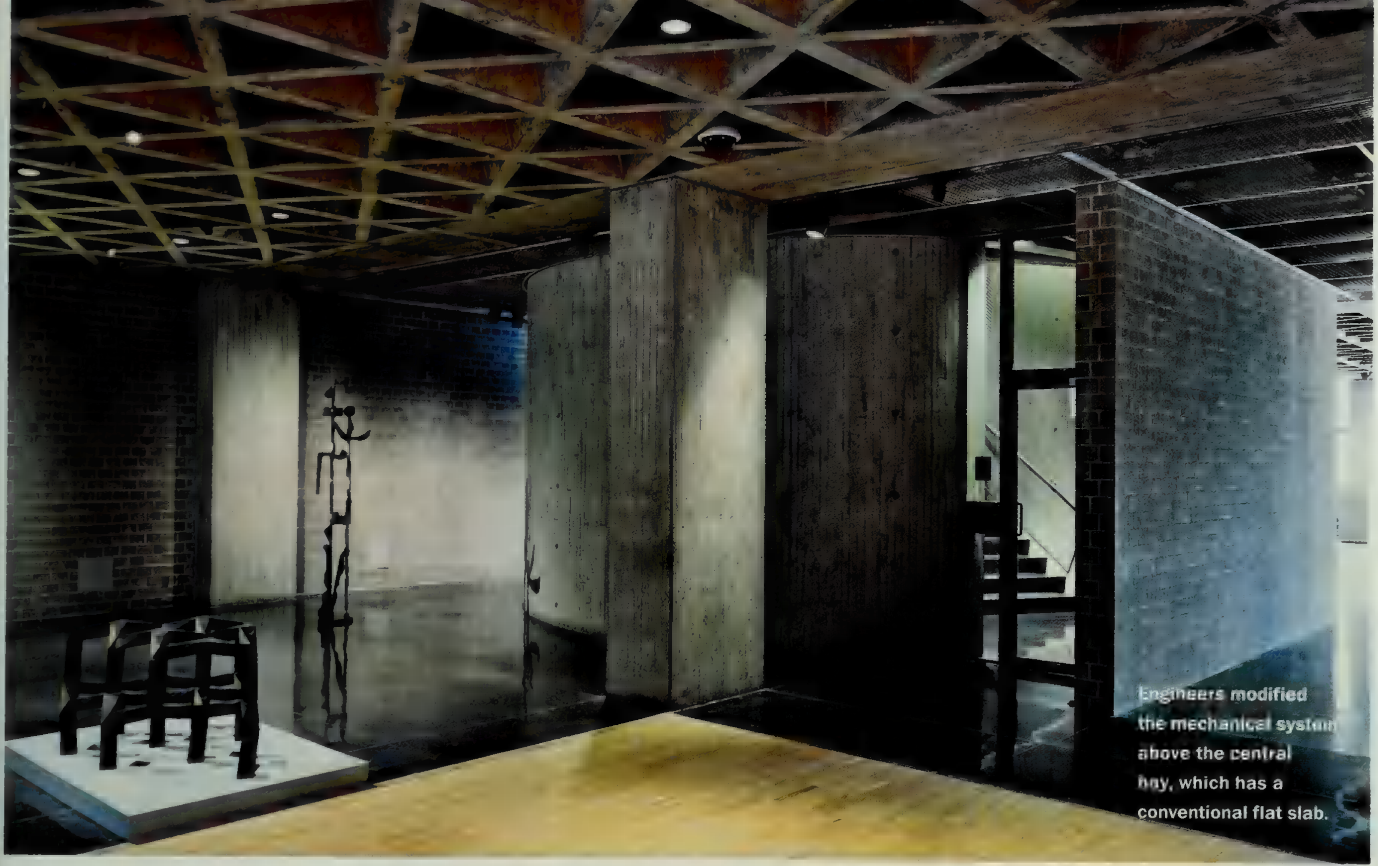
In the galleries, track lighting, now placed in every ceiling bay, augments daylight. Sensitive work can be protected with shading scrims. To prevent condensation, designers moved these scrims from their original location immediately next to the window walls to the room side of the radiator.

In addition to the track lighting, daylight also plays a crucial role in the exhibition spaces—one that can be more fully appreciated with the replacement of the handsome four- and five-story window walls. The originals, one of the first uses of insulated glass, were plagued by condensation problems, necessitating installation of an interior gutter soon after the building first opened. The new windows substitute thermally broken aluminum for the original steel frames, matching the exterior profile exactly. Interior dimensions vary slightly from Kahn's design to accommodate insulation and wind loads, says Lloyd DesBrisay, AIA, Polshek construction-phase project architect.

For further insurance against condensation, the designers increased radiator heating capacity and replaced Kahn's shading scrims, moving them from their original location immediately adjacent to the windows to the room side of the radiator. The configuration helps keep the glazing above the dew point, preventing condensation, says Michael Freliech, principal at Altieri Sebor Wieber, the mechanical engineer. This past winter, New Haven temperatures hovered just above zero for several days, yet no condensation developed.

Kahn's spring-loaded demountable display partitions were also replaced; the original plywood "pogos" were heavy and unwieldy. But the new version has a honeycomb core. The ease of moving the lighter panels, along with infrastructure improvements, such as an elevator that can accommodate the collection's larger pieces, should facilitate the changing of exhibitions.

Flexibility and modularity are also evident in the lobby's new media lounge, designed by Yale professor and New York City–based architect Joel Sanders. Here mobile furniture and display cases on casters can be reconfigured to suit a variety of activities, including informal study, receptions, lectures, or films. The spare units, made of ebonized oak, are different from, but sympathetic to, the architecture's



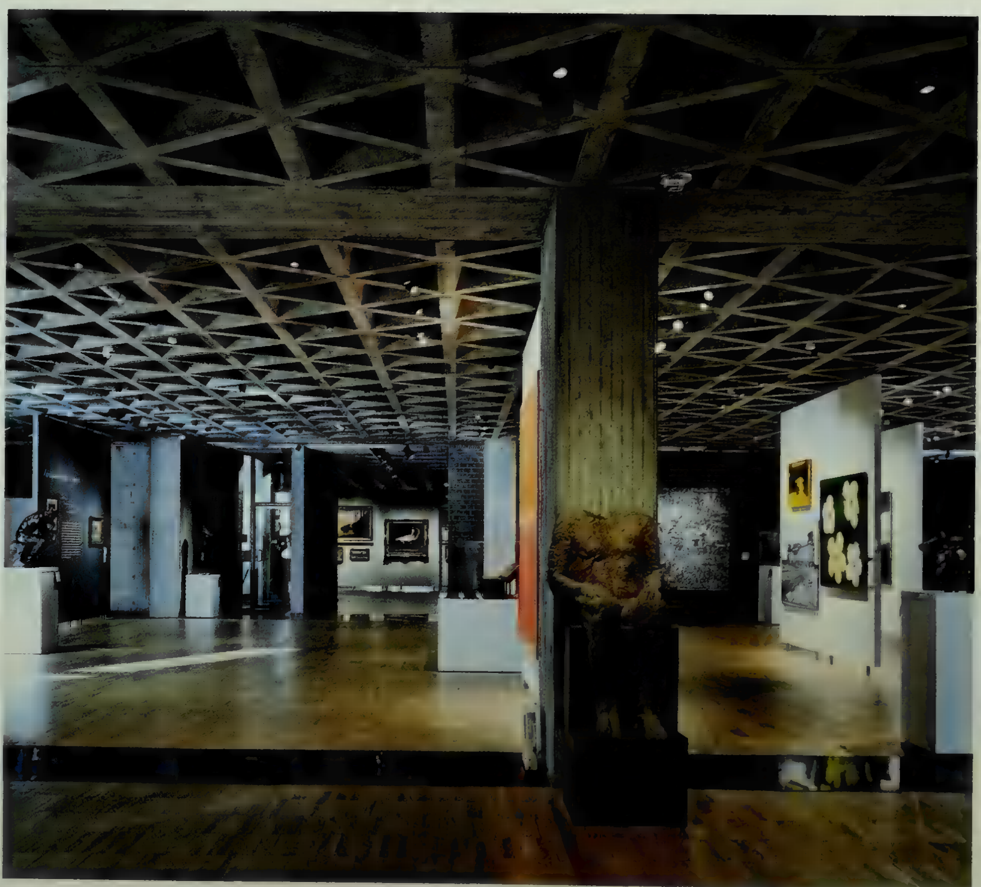
Engineers modified the mechanical system above the central bay, which has a conventional flat slab.

powerful forms. "The furniture is in the spirit of Kahn but does not slavishly mimic him," says Sanders.

Commentary

The renovation of the Yale University Art Gallery represents a significant technical accomplishment. The designers have restored the building's flexibility and utility, while addressing the shortcomings of its outdated systems. And they have managed to do this without compromising the building's bold geometry, and without muting what Duncan Hazard, Polshek's partner in charge, calls its "tough elegance."

Kahn's rich palette of materials has been brought back to life. The warm quarter-sawn oak floors contrast with the dark and smooth terrazzo. Drywall that had covered the concrete-block walls has been removed, revealing their textured surface. And although their scars have been patched, the poured-in-place elements retain the imprint of the original wooden forms. "The materials," marvels Reynolds, "just talk to each other." ■



Two: TEMPLE EMANU-EL

New York City

Beyer Blinder Belle Architects has delved into every nook and cranny to restore and refurbish a beautifully crafted synagogue.

By Sara Hart

Architect: *Beyer Blinder Belle Architects & Planners—John H. Beyer, FAIA, executive partner; Tom Lindberg, AIA, project manager; Kohn, Butler, and Stein, original architects; Goodhue Associates, original consultants*

Client: *Congregation Emanu-El—Dr. David Posner, senior rabbi*

Consulting restoration architect: *James W. Rhodes*

Client architect: *Barteluce Architects & Associates*

Engineers: *Office of James Ruderman (structural); Atkinson Koven Feinberg (m/e/p); Jaffe Holden (acoustics); Sachs Morgan (lighting)*

Size: *30,000 square feet*

Cost: *$30 million*

Completion date: *Fall 2006*

Sources

Sponges for Guastavino

Akoustalith tiles: *Akachemie (Wishab sponge)*

Cleaner for limestone, granite travertine: *ProSoCo (Enviro Klean)*

Upholstery fabric: *Scalamandre (pews); Old World Weavers (bimah chair)*

Acoustical ceiling panels: *Sound Concepts Acoustical Products*

Lighting control system: *Electronic Theater Controls*

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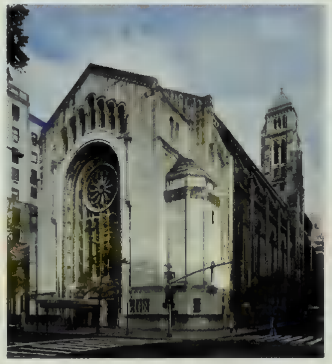
The largest synagogue in the world occupies a prominent corner on New York City's Fifth Avenue across from Central Park. Surprisingly, it has not achieved the acclaim of comparable Manhattan architectural landmarks, such as Grand Central Terminal or Saint Patrick's Cathedral. Designed by Kohn, Butler, and Stein and completed in 1930, Temple Emanu-El features an imposing limestone facade, marked by a magnificent stained-glass wheel window by Oliver Smith, behind which resides a soaring, 103-foot-high, clear-span basilica, clad in Siena marble and enriched with glass mosaics and gold tiles. The ornamentation is masterful: Red, green, and yellow columns with individually distinct capitals support the side galleries; steel trusses with exposed rafters and tie beams spanning the ceiling are covered in plaster and also painted rich reds, blues, greens, and yellows. Gold leaf interwoven into the polychromatic ceiling elements bestows a soft gleam to these upper reaches. The room, which seats 2,500, is flanked by the equally stunning Beth-El Chapel. More intimate in scale, it is distinguished by two domes resting on granite columns.

While it may seem unusual to design a synagogue inspired by Romanesque churches, one of Temple Emanu-El's architects, Clarence Stein (a major proponent of the garden city movement), explained in the February 1930 issue of *The Architectural Forum* that this Romanesque style peculiar to southern Italy showed a Moorish influence, and appropriately reflected "the intermingling of Occidental and Oriental thought."



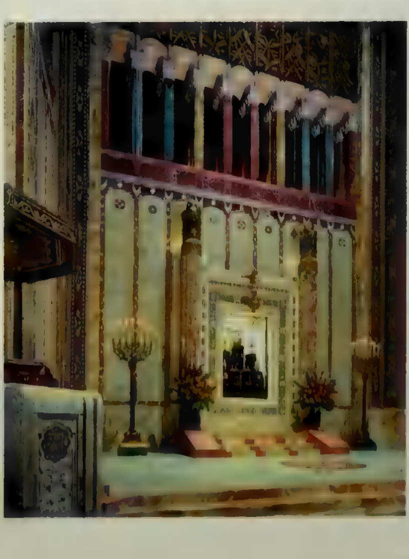
Program

Although the interiors had always been properly maintained, the enormous size of the space and lack of access to many of the areas made cleaning difficult. As a result, 75 years of accumulated city grime, soot, and dust had diminished the original luster of the materials, creating a dingy, oddly monochromatic pallor throughout. In addition, aging gutters and roof leaders had started to fail, and water had migrated into the interiors, damaging the plaster ceiling and stone and tile walls.

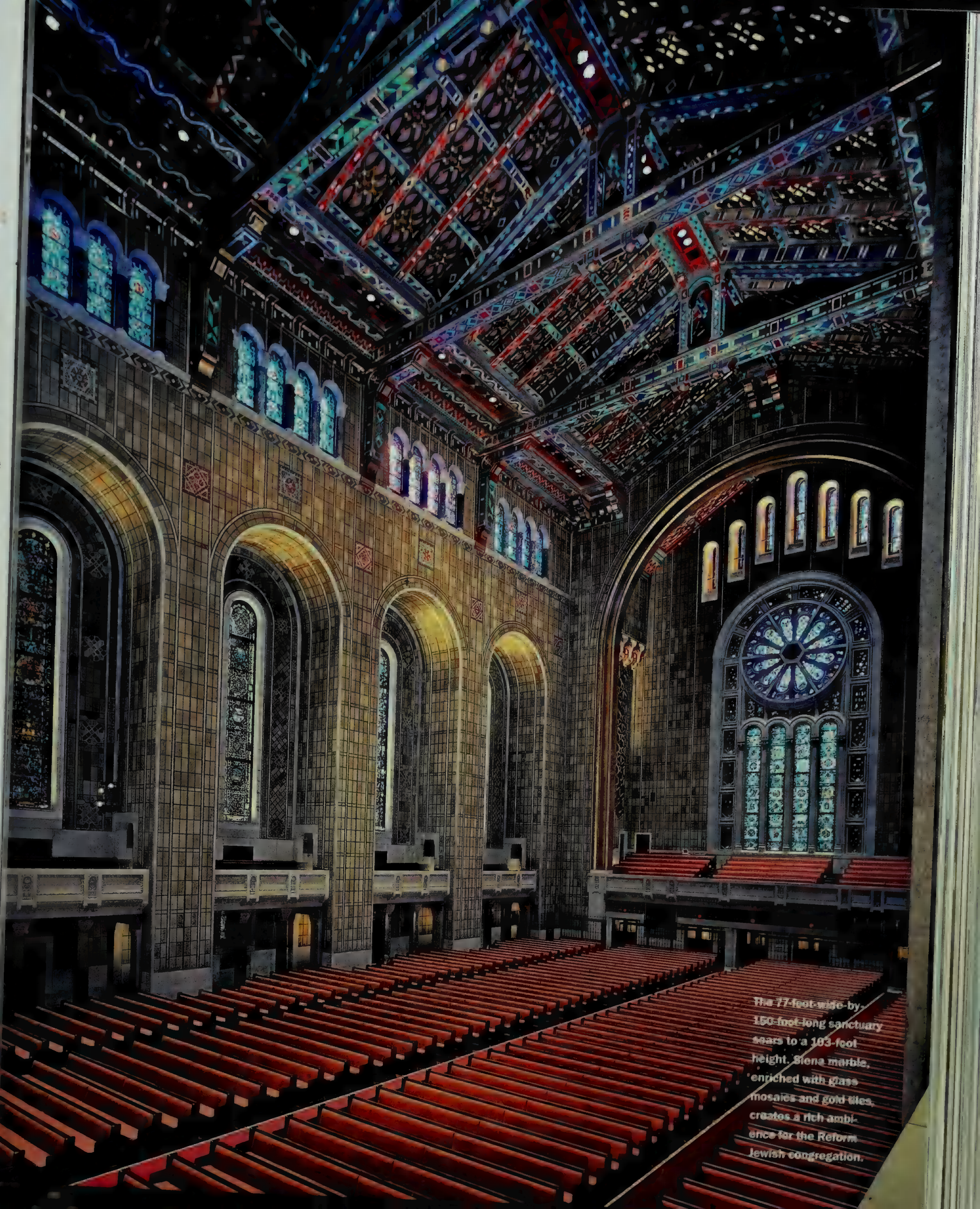
Beyer Blinder Belle Architects & Planners (BBB), the firm responsible for refurbishing Grand Central Terminal in 1998, directed this $30 million restoration and upgrading of the m/e/p systems. The architects undertook the work in two phases so the temple could remain open during the Jewish High Holy Days.

Solution

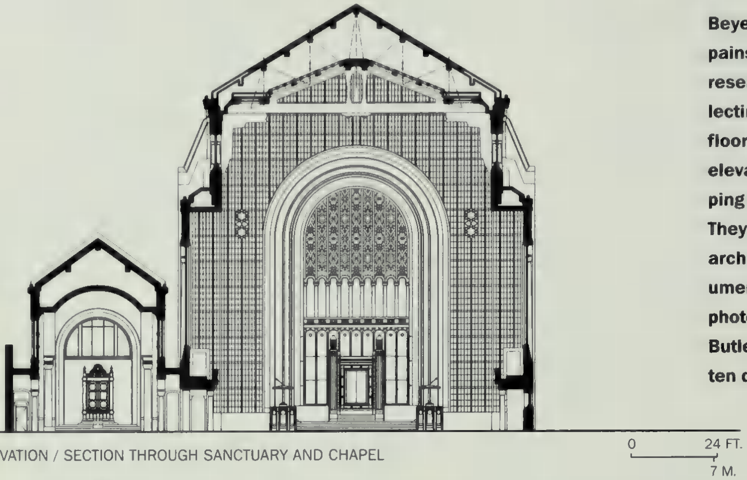
In this case, the solution was not an architectural one in the usual sense. Success depended on meticulous research and planning before any



The imposing limestone facade of the temple (top), on Fifth Avenue, is marked by a stained-glass wheel window. At the east end of the sanctuary is the bimah and organ loft (right).

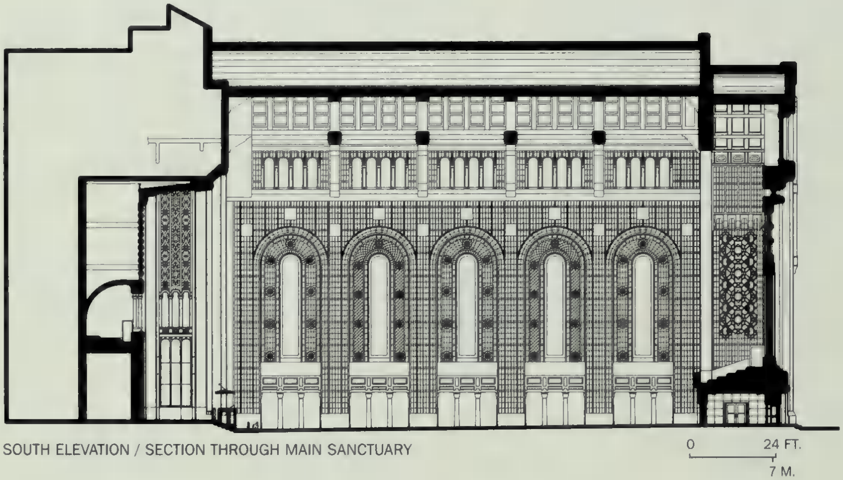


The 77-foot-wide-by-150-foot-long sanctuary soars to a 103-foot height. Siena marble, enriched with glass mosaics and gold tiles, creates a rich ambience for the Reform Jewish congregation.

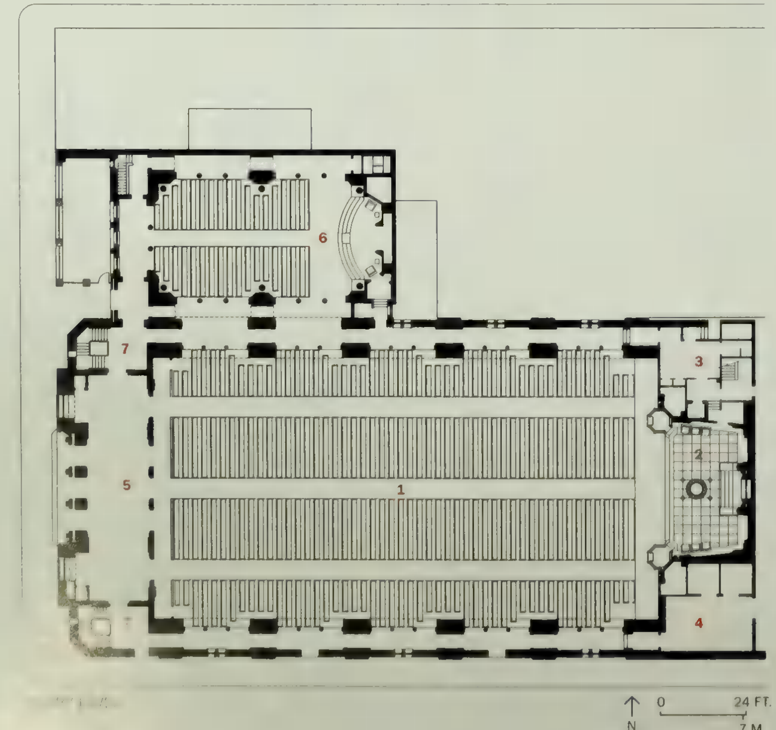


EAST ELEVATION / SECTION THROUGH SANCTUARY AND CHAPEL

Beyer Blinder Belle's painstaking process of research included collecting data, drawing floor plans and various elevations, and mapping problem areas. They were aided by an archive of original documents, construction photographs, and Kohn, Butler, and Stein's written descriptions.



SOUTH ELEVATION / SECTION THROUGH MAIN SANCTUARY



1. *Main sanctuary*
2. *Bimah*
3. *Rabbi's robing room*
4. *Community house lobby*
5. *Vestibule*
6. *Beth-El Chapel*
7. *Memorial stair*

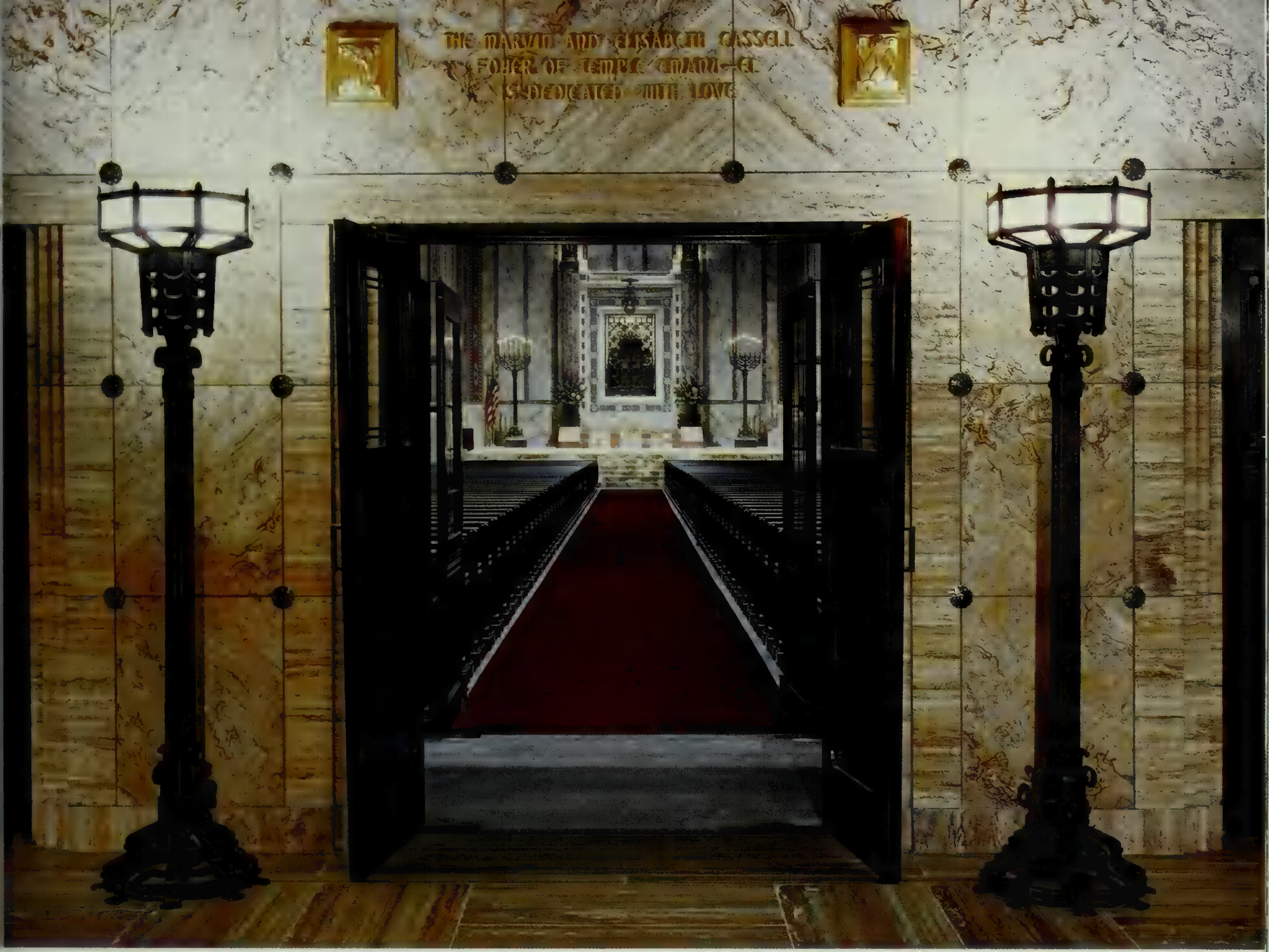
restorative action could be considered. According to project architect Tom Lindberg, AIA, BBB contracted specialists in the industrial roped-access techniques used in rock climbing and caving to survey and document the conditions of inaccessible recesses 100 feet above the floor.

Once that data was collected, the architects began the arduous process of drawing floor plans and elevations and mapping every problem. They were aided by an extensive archive of original material. With the mapping process, BBB located areas of water staining, efflorescence, plaster decay, marble cracks, mosaic-tesserae loss, metal corrosion, and paint failures.

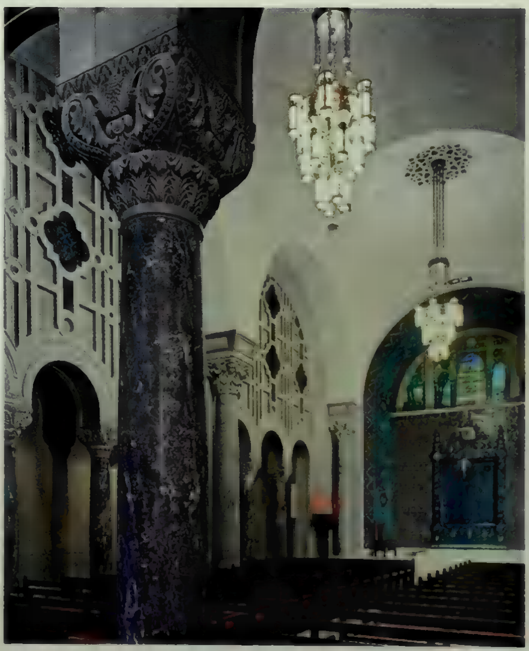
After this phase, the architects began testing multiple treatments for a mind-boggling list of materials, including 20 species of stone—among them marble, granite, limestone, and travertine—ceramic and glass tiles; marble mosaics; several metals, including ornamental bronze, steel, nickel, and brass; painted and gilded plaster; Guastavino's sound-absorbing Akoustalith tile; and polychromatic inlaid wood marquetry. Treatments ranged from the relatively simple development of dry-cleaning techniques for porous materials and palettes for matching paint colors to the disassembly, releading, and resetting in new frames of 5,000 square feet of painted and stained glass windows. Careful hand-cleaning revealed rich colors in the marble that corresponded to those in the stained glass.

Commentary

When the materials are fragile and, therefore, vulnerable, the act of cleaning poses a clear and present danger. The architects were patient and thorough, expanding the normal expectation of due diligence to one of exhaustive effort. Because of BBB's obsessive attention to detail, no compromises were necessary, and no harm was done. The interiors have the same dazzling luster today as they did the day the temple opened 75 years ago. Perhaps now, Temple Emanu-El will receive the architectural recognition that has eluded it. ■



As part of the $30 million restoration effort, Beyer Blinder Belle cleaned, repaired, and repainted the chapel (right). A stained-glass window designed by Louis Comfort Tiffany, recovered from the temple's previous location, occupies the east wall. BBB cleaned the Siena travertine walls and the beamed walnut ceiling of the low-ceilinged lobby, which opens off Fifth Avenue (above and left). BBB also upgraded lighting and replaced two Samuel Yellin–designed torchères with replicas.



Three: GRIFFITH OBSERVATORY

Los Angeles, California

Pfeiffer Partners and Levin & Associates Architects' restoration and expansion of L.A.'s beloved landmark lures stars back to Hollywood.

By Russell Fortmeyer

Architect: *Pfeiffer Partners Architects—Stephen Johnson, AIA, principal in charge; David Hart, AIA, Edward Carfagno, AIA, Steven Hall, AIA, Stephanie Kingsnorth, AIA, Lalida Nakatani, AIA; Austin and Ashley, original architects*
Associate architect: *Levin & Associates Architects—Brenda Levin, FAIA, principal; Robert Knight, project architect*
Client: *City of Los Angeles*
Consultants: *Miyamoto International (structural); M-E Engineers (m/e/p); Pfeiffer Partners Architects (interiors); Melendrez Design Partners (landscape); Psomas and Associates (civil); Horton-Lees Brogden Lighting Design; McKay Conant Brook (acoustical, audio-visual); C&G Partners (exhibits, signage); Auerbach + Associates (theater/planetarium audiovisual); Simpson Gumpertz Heger (exterior conservator); Rainer and Zebala (murals conservator); S.J. Amoroso Construction (general contractor)*

Size: *27,300 square feet (renovation); 39,600 square feet (addition)*
Cost: *$93 million*
Completion date: *October 2006*

Sources
Copper roofing: *Van Nuys Sheet Metal*

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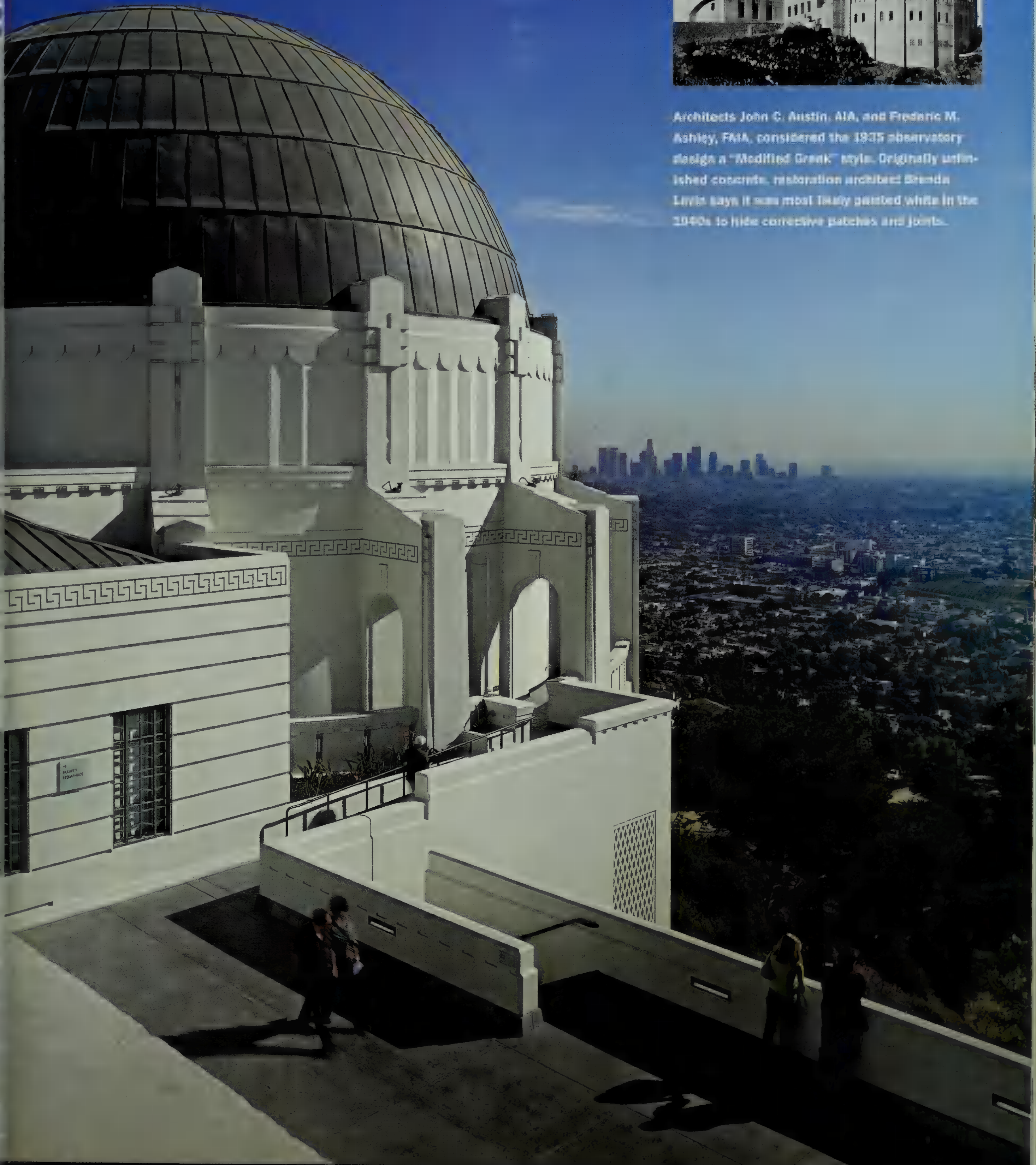
Like Los Angeles, the Griffith Observatory, a 1935 Art Deco masterpiece conceived by Russell Porter and designed by the firm Austin and Ashley, exists in several domains, illusory and real. Whether glimpsed in the movies—1955's *Rebel Without a Cause* or 1984's *The Terminator*—or as a twilight destination in the Hollywood Hills, the Griffith's iconic three-domed structure, what longtime observatory director Edwin Krupp calls the "hood ornament of Los Angeles," also provides that rare Los Angeles accident: true public space.

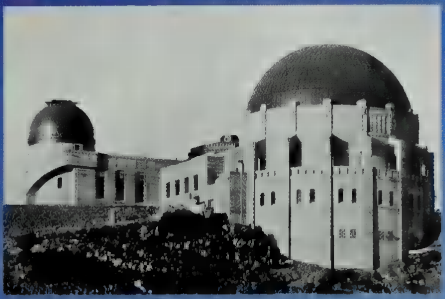
Angelenos have come to take for granted the drop-dead views of the L.A. basin from the Griffith's formal Beaux-Arts rear terraces and colonnade, as well as the informative, accessible displays of astronomy's wonders inside (see page 183 for more on the new exhibits). They didn't foresee that their fondness for the building would wear it out to the point where it would need to close for five years while comprehensive restoration could occur.

The observatory rests on Mt. Hollywood, at the top of the 3,000-acre Griffith Park, overlooking Hollywood and Downtown L.A. (above), with views to the west toward the Pacific Ocean.

Program

Pfeiffer Partners and Levin & Associates respected these convictions when the two L.A. architectural firms collaborated on the preservation and expansion of the observatory





Architects John C. Austin, AIA, and Frederic M. Ashley, FAIA, considered the 1935 observatory design a "Modified Greek" style. Originally unfinished concrete, restoration architect Brenda Levin says it was most likely painted white in the 1940s to hide corrective patches and joints.

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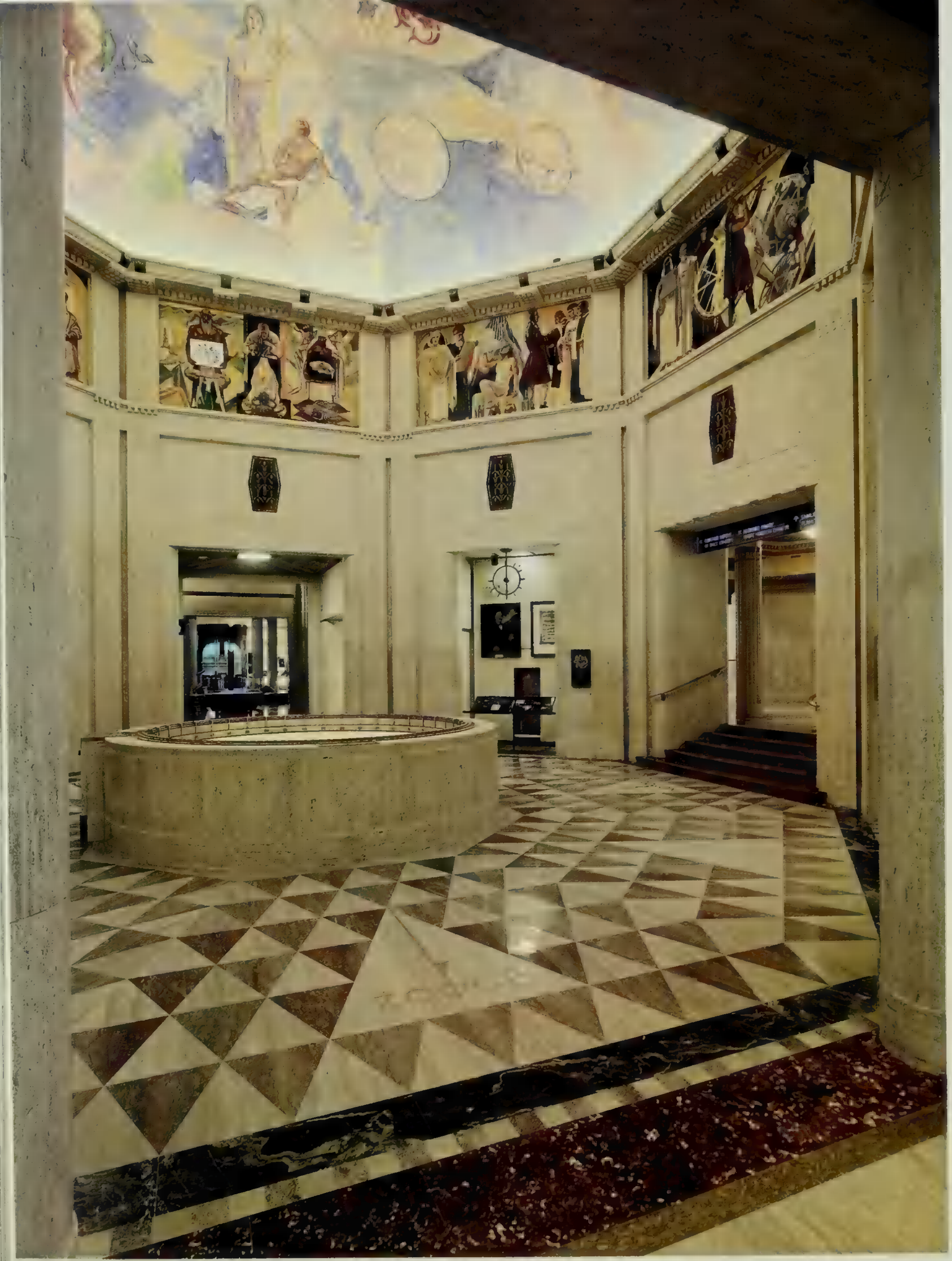


Conservationists restored the Hugo Ballin murals in the central rotunda (right). The Griffith's Foucault pendulum (above, not visible), hanging in the middle of the rotunda, indicates the rotation of the Earth as it swings.

during a 10-year, $93 million project. It helped considerably that the two firms' principals—Pfeiffer's Stephen Johnson, AIA, and Brenda Levin, FAIA—had worked on some of the most high-profile historic preservation projects in Los Angeles, including Pfeiffer's 1993 renovation of Bertram Goodhue's 1926 central library (at the time, Pfeiffer was part of Hardy Holzman Pfeiffer) and Levin's 2001 renovation of A.C. Martin's 1925 city hall.

Johnson and Levin approached the project as a study of dualities—the existing and the new, the iconic and the contemporary, the sky and the ground. Walking up to the building, you would never know the architects had taken the existing 27,000-square-foot building's cramped galleries and increased their size with nearly 40,000 square feet of new underground space.

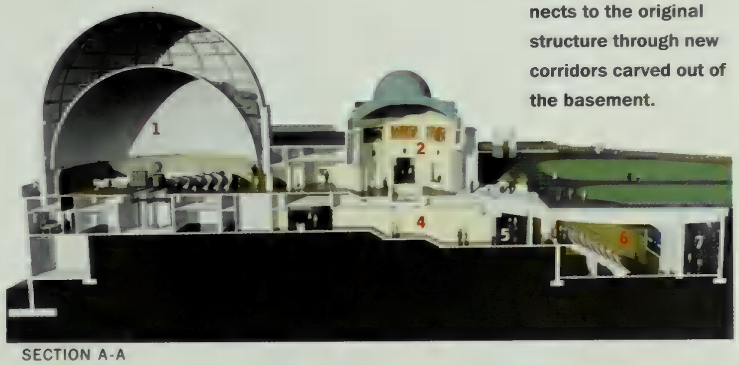
Solution

The original design's brilliance rests largely in the architects' embrace of the program as a container of and surface for instruments for observing the sky. Johnson says these aspects inspired the design of the expansion to express itself as an instrument, in this case a "transit corridor" along the new west elevation that tells astronomical time. Located on a north–south line, the device lies between a glass curtain wall and a detached glass wall, both framed in heavy bronze.

The bronze used throughout the observatory connects materially to the darkened copper of the domes. Levin says at first she thought they could remove the copper cladding from the concrete dome over the planetarium, add a layer of waterproofing, and replace the copper, but test results on the copper indicated the need to replace the cladding with a historically accurate system. The architects gutted the interior of the planetarium, which allowed a temporary structure to rise from the center of the space's floor and up through the double dome to support hanging scaffolding that enabled contractors to restore the dome without damaging its structural integrity.

The Hall of the Eye room (bottom right) in the original building includes diagrams of optical instruments on the ceiling, as well as a 12-inch-diameter Zeiss telescope. The new Gunther Depths of Space gallery (middle right) includes recent space exploration.

In section, new exhibition space lies under the front lawn and connects to the original structure through new corridors carved out of the basement.



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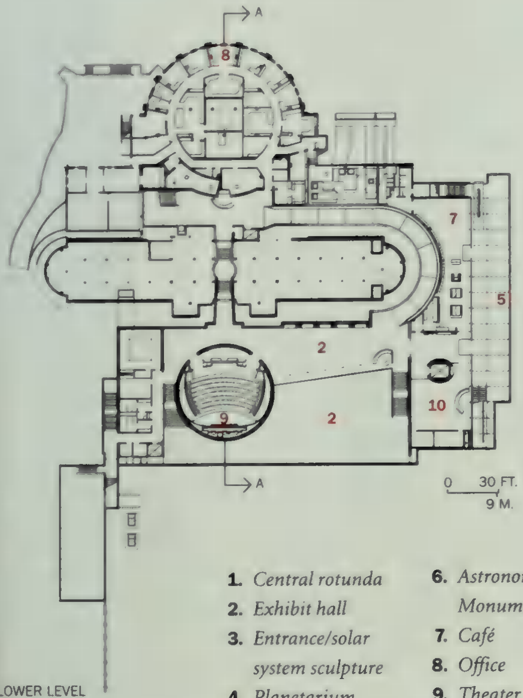
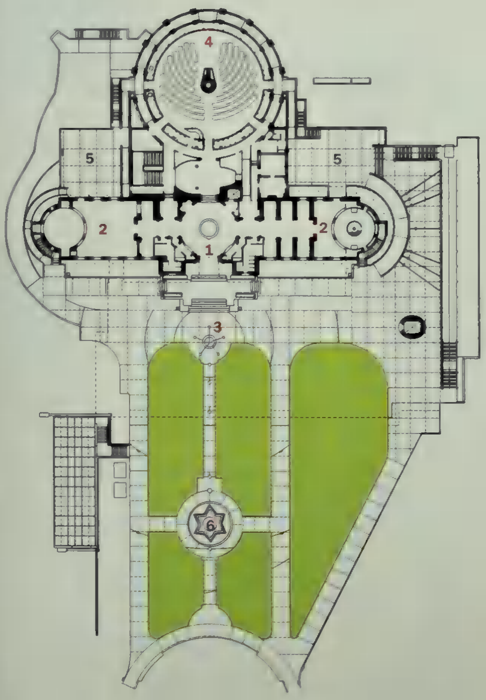
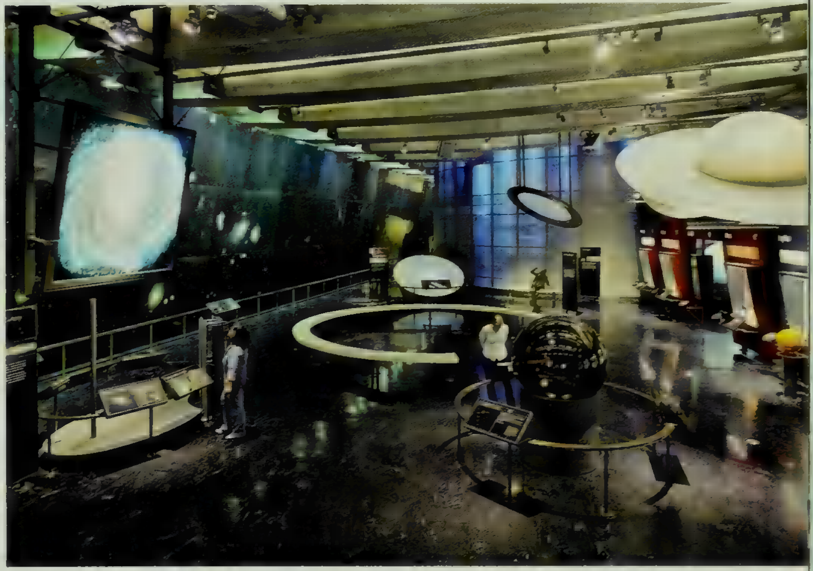


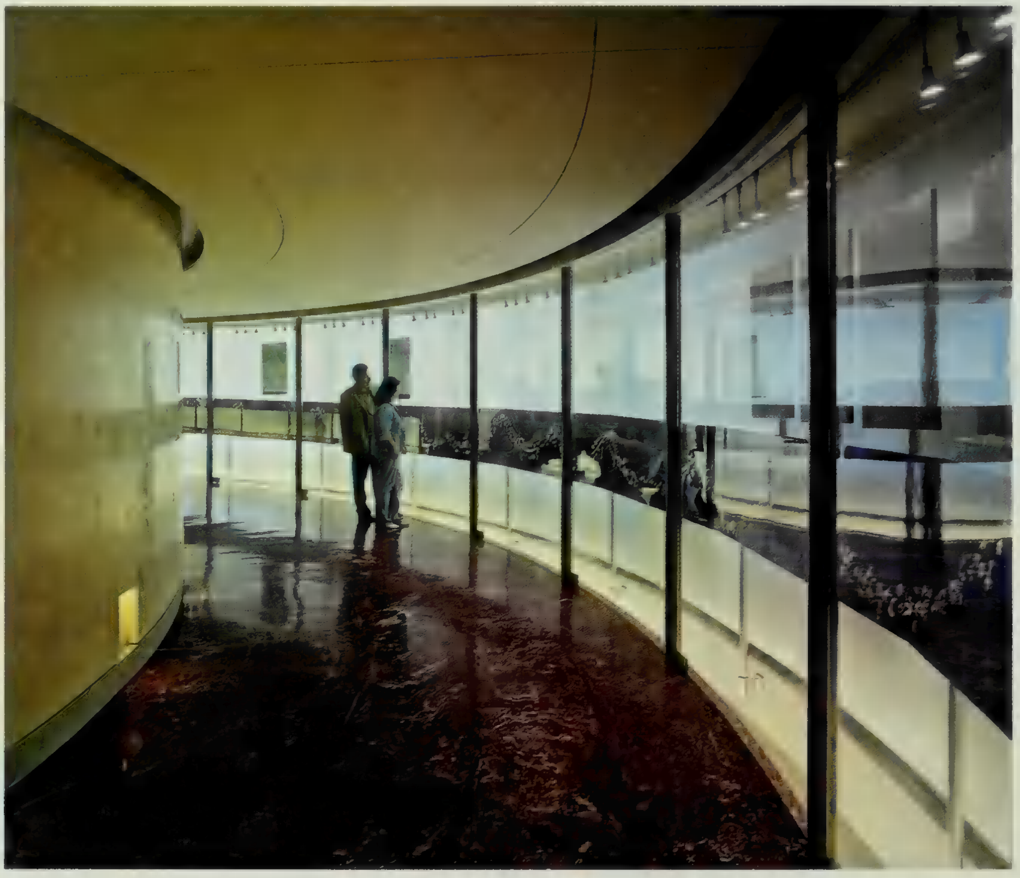
LOWER LEVEL

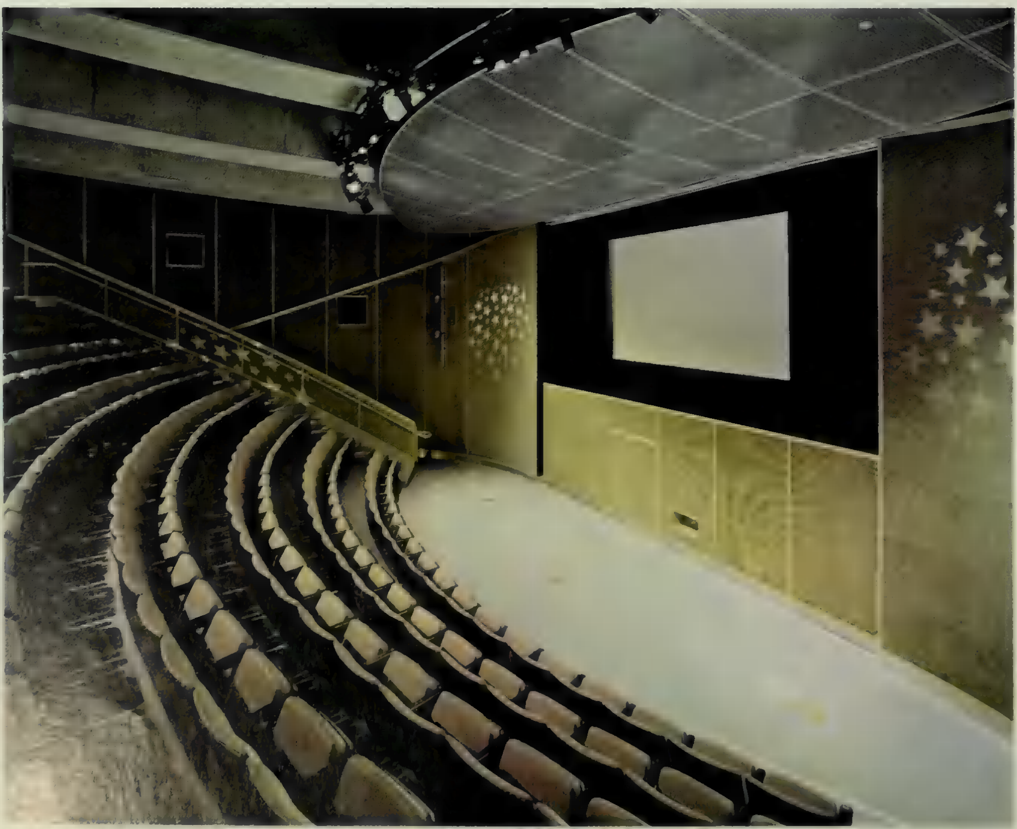
1. *Central rotunda*
2. *Exhibit hall*
3. *Entrance/solar system sculpture*
4. *Planetarium*
5. *Terrace*
6. *Astronomer's Monument*
7. *Café*
8. *Office*
9. *Theater*
10. *Gift shop*



ENTRANCE LEVEL







The Cosmic Connection gallery (left), which displays quirky astronomically themed jewelry on loan from ■ Griffith board member, connects to the basement and the Leonard Nimoy Event Horizon Theater (below).

Due to the 1933 Long Beach earthquake, the original architects eschewed the vogue for a Spanish Revival tile dome, embracing concrete in order, Levin says, to "use materials volumetrically in a clean, modern building," resulting in a "fortresslike" building that needed no structural upgrades. The high craftsmanship of the original observatory was owed to cheap, Depression-era labor, says Johnson, and it shows in the restored exterior details, heavy bronze window grates, and the marble floor and travertine walls of the rotunda.

The architects converted the basement of the original structure into expanded offices and carved out a connecting stair with Venetian plaster walls. Visitors descend farther via two corridors to the Gunther Hall and Nimoy Theater, both framed in extraordinarily large concrete beams and columns designed to support large fire trucks on the lawn above, if needed. Nothing prepares you for the vastness of this space, as it opens up as a lesson in planetary scale. The circular-plan theater, designed to mimic the circumference of the sun, dwarfs the scaled planets hanging across the ceiling. (For the record, Pluto is included.)

Commentary

Bound up in the history of architecture is the history of architects, most often revealed through the need for collaboration. Good architects may fulfill a client's needs, but great architects reveal the nature of a place, helping us formulate a concept of history—that constructed realm of permanence—even in a shifting, fractured landscape such as Los Angeles. Johnson and Levin have eloquently solved one of architecture's enduring questions—how are we to treat buildings that belong to the public, but no longer adequately serve it—in a building with as much order and clarity as the heavens it displays. ■

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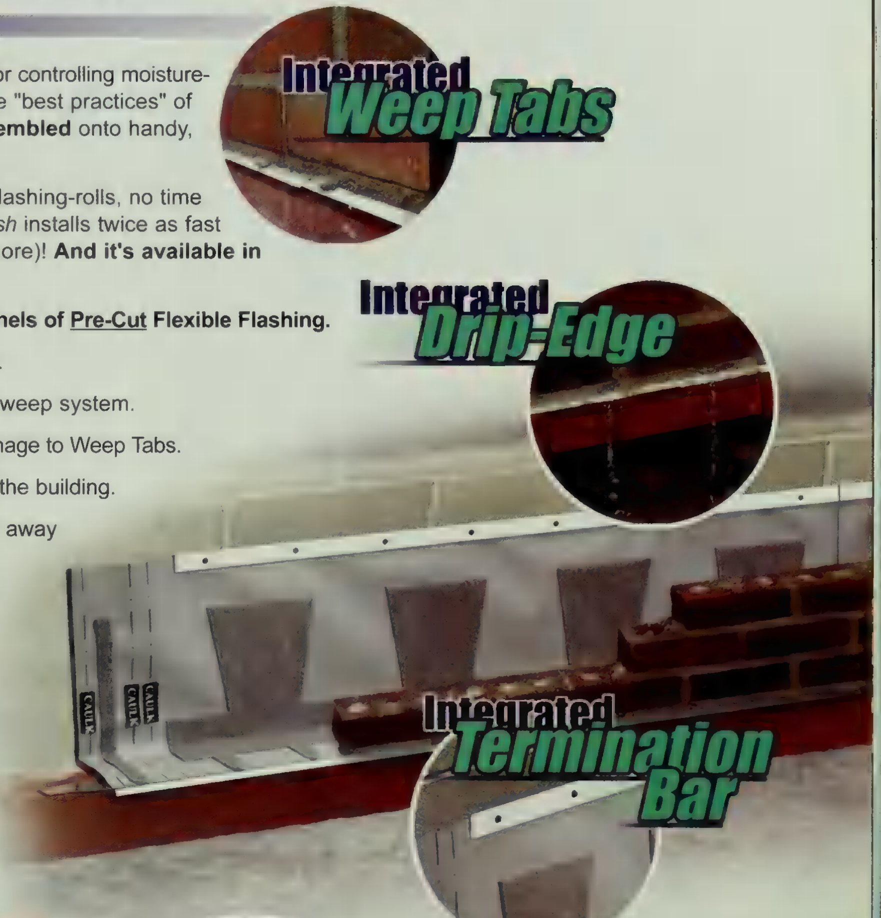

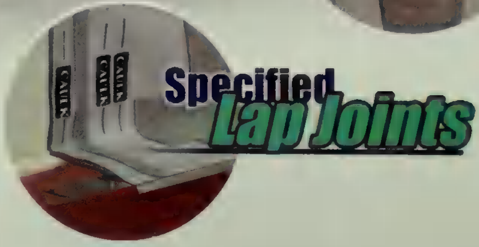

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Architectural Technology

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A museum builds a "bathtub" for its German sub (page 180).

A capitol expands but remains a temple on a hill. (page 167).

Any architect who has been asked to preserve, adapt, or expand a historic building knows that such an assignment can be a challenging one. Saving significant structures while equipping them for contemporary use requires satisfying the often conflicting demands of aesthetics, program, and performance. When conserving or upgrading a cherished existing building, designers face myriad difficult decisions, such as which elements are critical to save, when to substitute different materials, and how best to incorporate new systems.

Such a balancing act was required of the architects of the first project featured in this month's technology section—the just-completed renovation and expansion of the Virginia State Capitol in Richmond. Hillier Architecture and its consultants diagnosed the source of moisture problems, analyzed original finishes, and invisibly integrated up-to-date infrastructure within the building's historic fabric. They also devised a way to add on to the capitol without compromising its aesthetic or structural integrity.

Our second feature is not a traditional preservation story. It examines the New Acropolis Museum now nearing completion in Athens. Here the architects faced the challenge of creating an appropriate environment for the preservation and display of culturally significant architectural fragments, many of which are at the center of an international controversy. They also had to cope with a sensitive context that included the nearby Parthenon and archaeological ruins on the museum's site.

From the Acropolis, in Athens, visitors will be able to see the new museum built to house sculpture and artifacts found at the site, including works from the Parthenon (page 176).

Finally, we discuss the design and construction of a new home within Chicago's Museum of Science and Industry for a 700-ton submarine that until recently had been on view outdoors on the museum's grounds. The subterranean solution for the installation seems especially fitting given the nature of the object on display. *Joann Gonchar, AIA*

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A Revered Jeffersonian Landmark Renewed

WITH THOROUGH RESEARCH, TESTING, AND ANALYSIS, A HILLIER-LED DESIGN TEAM EQUIPS THE STATE CAPITOL OF VIRGINIA FOR THE 21ST CENTURY, WHILE PRESERVING ITS RICH HISTORY

By Nancy B. Solomon, AIA

Of the 50 working state capitols in the U.S., arguably none is as historically significant as that of Virginia, in the city of Richmond. The original building, begun in 1785, was essentially the design of Thomas Jefferson, author of the Declaration of Independence and third president of the United States. With this commission, Jefferson sought to embody the ideals of the American Revolution in architectural form.

Eschewing the provincial English Georgian style prevalent in the period, Jefferson looked to ancient Roman models for inspiration. "He was trying to provide a model that would be eternally beautiful," explains Calder Loth, senior architectural historian at the Virginia Department of Historic Resources. Jefferson designed the capitol after the Maison Carrée, a Roman temple in Nîmes, France, as depicted in engravings by Charles-Louis Clérisseau. Situated on what was known as Shockoe Hill, with a ceremonial portico overlooking the James River to the south, the brick structure rose high above all else in Richmond. Main entrances to the east and west led through vestibules to a central skylit rotunda. Double-height assembly halls flanked this grand space on the north and south.

The shape of democracy

Reflecting the imagery that developed alongside the birth of democracy, Jefferson's house of government was a highly visible and dignified structure that evoked respect yet encouraged citizens to participate in the democratic process. And, as Jefferson had hoped, the building became a model for the architecture that would house virtually all public institutions, from capitols and courthouses to post offices and libraries. "It began the Classical Revival movement in this country," notes Loth.

For more than a century after it was built, the Virginia State Capitol remained a structure with a single columned portico and pediment (left). Around 1906, two symmetrical wings were added, giving the building much the same appearance it has today (above).

The vision of the primary architect was strong and clear enough to allow the building to adapt to the needs of later generations without diluting Jefferson's concept. As scholar Fiske Kimball pointed out in "Thomas Jefferson and the First Monument of the Classical Revival in America," which appeared in the *Journal of the American Institute of Architects* in 1915, even the original construction deviated in minor but discernable ways from the design. Jefferson sent drawings from France, where he was serving as U.S. minister. However, work began before the documents arrived, and builders laid a foundation that was larger than the one called for in these plans. They also raised the height of the first floor and omitted the ceremonial steps intended for the south-facing portico.

As time marched on, the building and surrounding Capitol Square provided the backdrop to other notable events. In 1807, Aaron Burr was tried for treason here, and ultimately acquitted. From May 1861, until Robert E. Lee's army abandoned Richmond in April 1865, the building served as the capitol for the Confederacy. Remarkably, the structure escaped the ensuing fires that burned much of the rest of the city.

Between 1904 and 1906, two symmetrical wings—one for the

CONTINUING EDUCATION

Use the following learning objectives to focus your study while reading this month's ARCHITECTURAL RECORD/ *AIA Continuing Education article. To receive credit, turn to page 174 and follow the instructions. Other opportunities to receive Continuing Education credits in this issue can be found on page 191.*

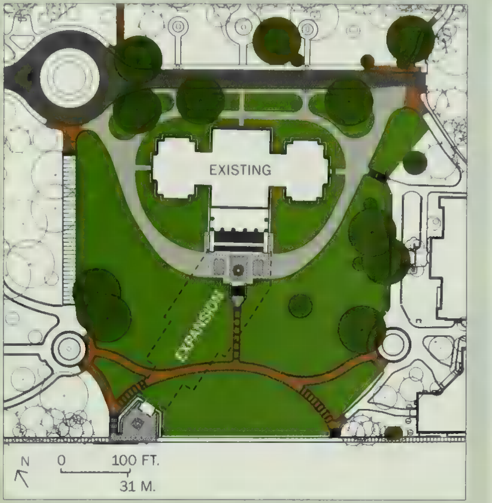
LEARNING OBJECTIVES

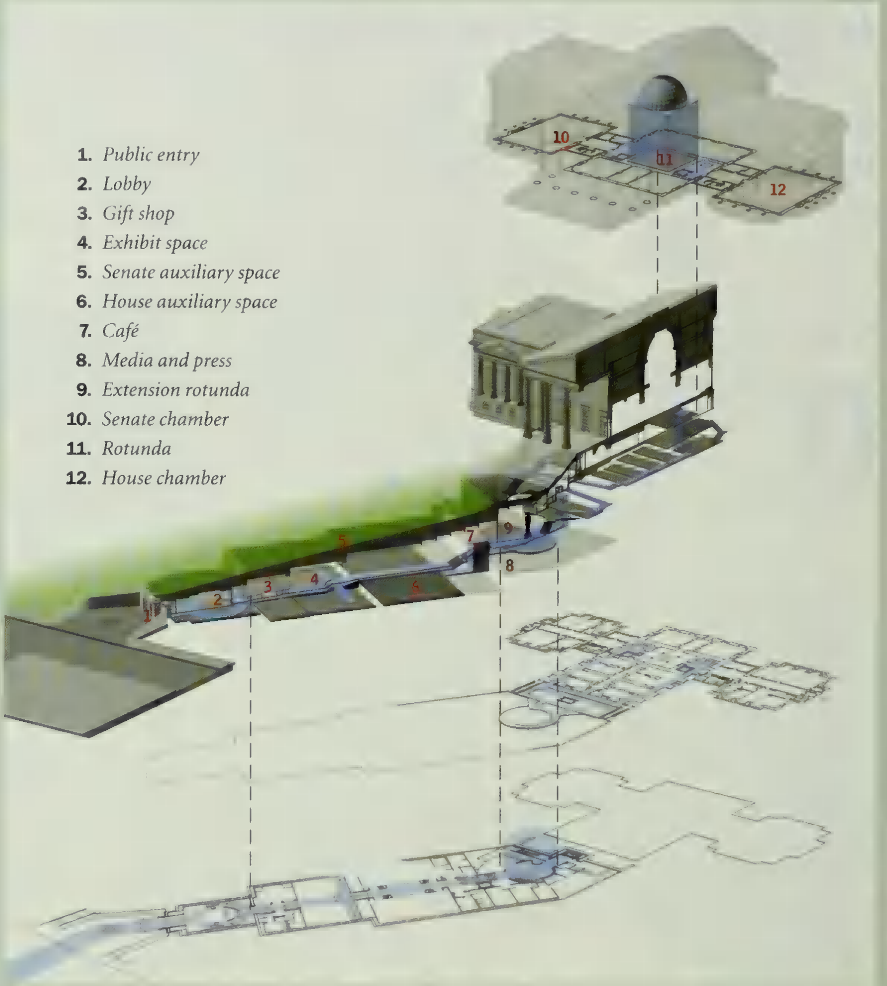
After reading this article, you should be able to:

1. *Explain Jefferson's design concept for the Virginia State Capitol.*
2. *Discuss the design considerations for the visitor center and new public entrance.*
3. *Describe the methods used to excavate the historic site.*

For this story and more continuing education, as well as links to sources, white papers, and products, go to ***architecturalrecord.com**/tech/*.

Nancy B. Solomon frequently writes about building science and is the editor of the forthcoming book, Architecture: Celebrating the Past, Designing the Future, *in honor of the AIA's 150th anniversary.*





1. *Public entry*
2. *Lobby*
3. *Gift shop*
4. *Exhibit space*
5. *Senate auxiliary space*
6. *House auxiliary space*
7. *Café*
8. *Media and press*
9. *Extension rotunda*
10. *Senate chamber*
11. *Rotunda*
12. *House chamber*

To provide space for visitors, exhibitions, and additional meeting rooms for the legislature, the architect designed an underground expansion. The public enters the expanded facility at the southern edge of the existing building's grounds, known as Capitol Square (above). To reach the historic structure, visitors travel through gradually ascending spaces, to a connecting rotunda. Realization of the scheme did not require underpinning the existing foundations—a risky and expensive process.

House and the other for the Senate—were added to the east and west, connecting to the original building's main entrances via narrow corridors. The expansion deferred to Jefferson's Classical precedent. At this time, Jefferson's steps were finally added to the portico. Another major renovation was undertaken in the early 1960s, which included enlarging the corridors leading to the legislative chambers and upgrading building systems.

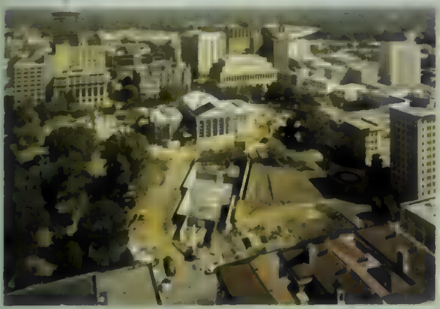
By the late 1990s, the complex still retained its status as the "temple on the hill," but was in great need of repair. "The building was like a shabby southern lady held together with Band-Aids," says Susan Clarke Schaar, the Clerk of the Senate. The plumbing was shot, freshly painted walls would quickly begin to peel, and the electrical system was problematic. In addition, space was at a premium. Even with the previous expansions, the building remained the nation's smallest working capitol, with only 60,000 useable square feet. And although the historic structure received up to 170,000 visitors annually, it had no dedicated reception area or room for educational programming.

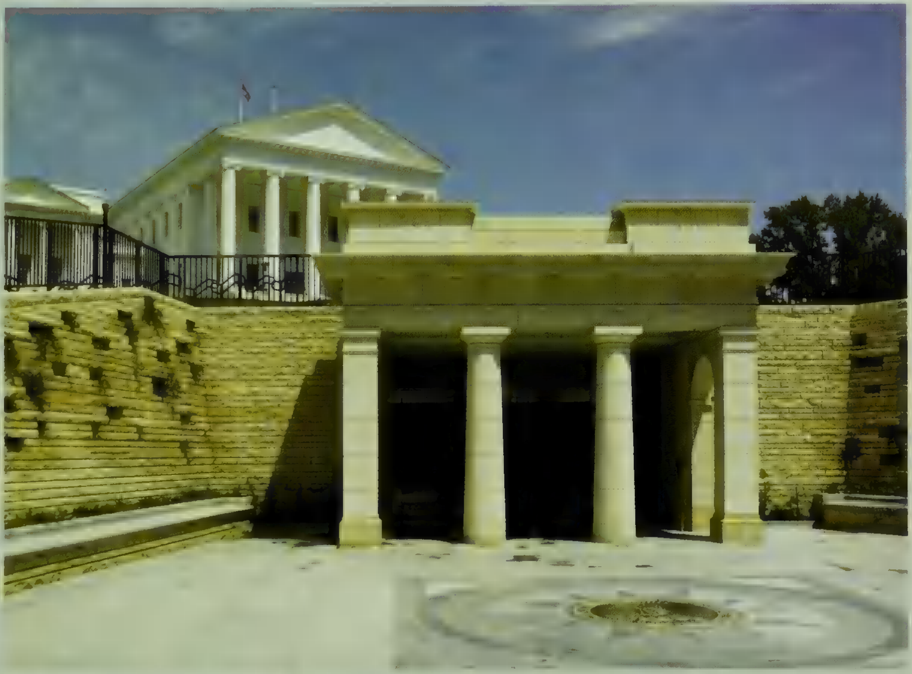
But how does one repair, upgrade, and add on to a landmark with so many layers of historical significance? The answer comes from listening to the building itself, according to Philadelphia-based George C. Skarmeas, AIA, a principal of Hillier Architecture. The firm was selected in 2003 to lead the $105 million assessment, renovation, and expansion project, completed in early April. "The building had to be the first and most significant source of information and inspiration to guide us," he says.

So began an extensive review of the existing complex by the highly integrated project team, which included not only Hillier and staff from the Commonwealth of Virginia's Department of General Services, but also an association of the Gilbane Building Company and the Christman Company as construction managers, structural engineer Robert Silman Associates, and mechanical engineer Joseph R. Loring & Associates, among a host of other consultants from the U.S. and abroad.

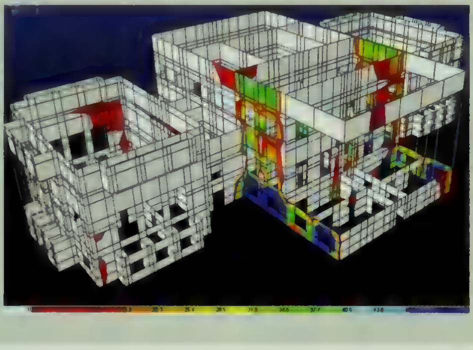
The team collected and reviewed historical documents to best understand Jefferson's design intent, the original construction, and the various changes that had occurred throughout the building's life. Cambridge, U.K.–based GB Geotechnics surveyed the facade with nondestructive testing tools. These included impulse radar to map the different layers of building materials and uncover potential voids between layers, metal detection and dynamic impedance equipment to identify specific materials,

THE VIRGINIA STATE CAPITOL BECAME THE MODEL FOR ALMOST ALL OF AMERICA'S PUBLIC ARCHITECTURE.





The underground extension is oriented at an angle to the existing building and surrounding street grid (above), allowing a small irregularly shaped plaza in front of the new public entrance (right). This new entry defers to Jefferson's original, without directly copying it. Through computer modeling, the engineers studied cracks that could develop within the historic structure due to the excavation. Fortunately, the actual settlement was so minute that no cracking occurred.



and infrared thermography to locate areas of water intrusion.

Investigators selectively employed destructive testing methods to determine, for example, the performance characteristics of the brick mortar and critical structural steel elements. Frank S. Welsh, of Bryn Mawr, Pennsylvania–based Welsh Color and Conservation, spent months on-site, judiciously scraping dime-size samples of surface finishes. He then used a stereomicroscope to identify the various layers of paint that had been applied over the years. Through visual inspection, and with the use of a spectrophotometer, he defined the palette that would subsequently be reproduced.

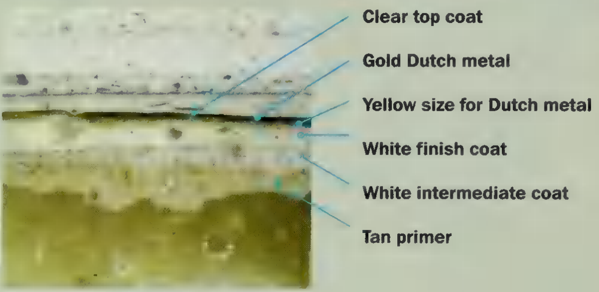
Water woes

The most serious and ubiquitous problem facing the old capitol was water. Poorly detailed roof drains had allowed rain to seep in from above and, without a properly operating perimeter drainage system, its foundation of porous brick absorbed moisture from below. The air-conditioning was typically turned off at the end of every workday, leading to a spike in humidity by the next morning. In addition, the exterior stucco had been sealed in the 1980s with a coating that "created a wetsuit on the building," says Skarmeas. Investigators saw droplets of water on the masonry wall when they broke this skin in one area for testing.

Remedying the moisture problem required a multipronged approach that included roof drain replacement, installation of a new perimeter drainage system, and an overhaul of the mechanical system so that proper temperature and humidity could be maintained. Workers also removed the exterior stucco, repointed the underlying masonry, and refinished the walls with stucco, this time omitting the coating.

While problems were discovered, so also were pleasant surprises. For instance, although it had been assumed that the interior had been gutted and rebuilt during the 1906 renovation, material analysis revealed that much of the 18th-century woodwork had been carefully disassembled, catalogued, removed from the site, and ultimately reinstalled. The team also discovered and restored a circa 1910 decorative paint scheme in both the House and Senate chambers, which had long been covered up and forgotten. With their proper finishes, along with the reopening of their original skylights, these legislative halls have been reanimated.

Because the complex reached maturity around 1906, and because only fragments of 18th-century interior fabric were found, the team chose the early 20th century as the most logical period for restoration of the rooms' basic appearance. However, as a working capitol, the building required a mechanical, electrical, and plumbing infrastructure that was state-of-the-art. In typical preservation fashion, the architect



A variety of tools and visual inspection helped a conservator identify the many different layers of paint that had been applied to the building's interior surfaces (left). In the Senate chamber, a circa 1910 decorative paint scheme was restored and a skylight uncovered (above left). At the center of a stairwell, an ornamental "birdcage" that once housed an elevator was discovered during the course of the renovation project.

carefully studied the existing structure to determine the least intrusive locations for the necessary ductwork, conduit, and piping.

Designers located the primary vertical chases adjacent to two new elevator shafts in spaces that had once been the east and west vestibules in Jefferson's design, thereby avoiding disruption of the major assembly spaces. They also took advantage of the flues and chases that had been inserted in previous building campaigns. And the team installed a new ceiling in the attic of the 18th-century structure, creating a full-height floor for support staff. The top horizontal services loop runs above this ceiling, through a now shallower attic space.

STATE REPRESENTATIVES WERE ADAMANT THAT NO MAJOR STRUCTURE BE ADDED TO CAPITOL SQUARE.

Locating the bottom horizontal loop for the building services was more complex because the team wanted the first floor's 18th-century ceiling vaults to remain exposed. Designers decided to break through the that floor slab, which had been installed in the 1960s and was therefore not considered historic. Contractors excavated about 2 feet down, without extending beyond the level of the original footings, to avoid destabilizing the structure. In some locations, ducts, pipes, and conduits penetrate load-bearing walls. Balancing the spatial requirements of this infrastructure with the need to limit the size of cutouts in masonry walls was a "three-dimensional puzzle," says Kirk I. Mettam, Silman Associates principal.

Extending south

The single largest design decision facing the project team was where to build the 27,000-square-foot addition, which would provide a public entrance and visitor center, include additional meeting spaces for the legislature, and provide a café and other amenities. According to Schaar, state representatives were adamant that no major structure be added to Capitol Square. Therefore, the client first suggested a small, detached entry pavilion on the north side of the building, through which the public would descend to an underground visitor center extending under the original structure. From here, the public could ascend into Jefferson's capitol.

But such a scheme would have required underpinning—incrementally removing existing soil beneath bearing walls and replacing it with structural elements. This sequential process can result in nonuniform shifts in the foundations and can subsequently lead to damage to the building fabric above. "Underpinning represents significant risk," says Mettam. It is also a very expensive process. Entering the complex from

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At the center of the original building is a balconied, domed, and skylit rotunda (left). A statue of George Washington, by French Neoclassical sculptor Jean-Antoine Houdon, has occupied the center of this impressive space since 1796. To enter the Jeffersonian building from the underground extension, visitors ascend a grand staircase (above) that circles the perimeter of a new domed space. Although this rotunda echoes the original, it employs a modern architectural vocabulary and a different palette of materials.

east and west would have required similar structural gymnastics.

Aware of underpinning's associated risks and costs, Skarmeas proposed a below-ground visitor center extending from an entrance at the bottom of the hill, at the southern edge of Capitol Square. Visitors would travel through gradually ascending spaces to a rotunda connecting the extension to the original building. The scheme was consistent with the original architect's intention. "Jefferson designed the building to be a temple on the hill, to be viewed and approached from the riverbank. Everything flows from that," explains Skarmeas.

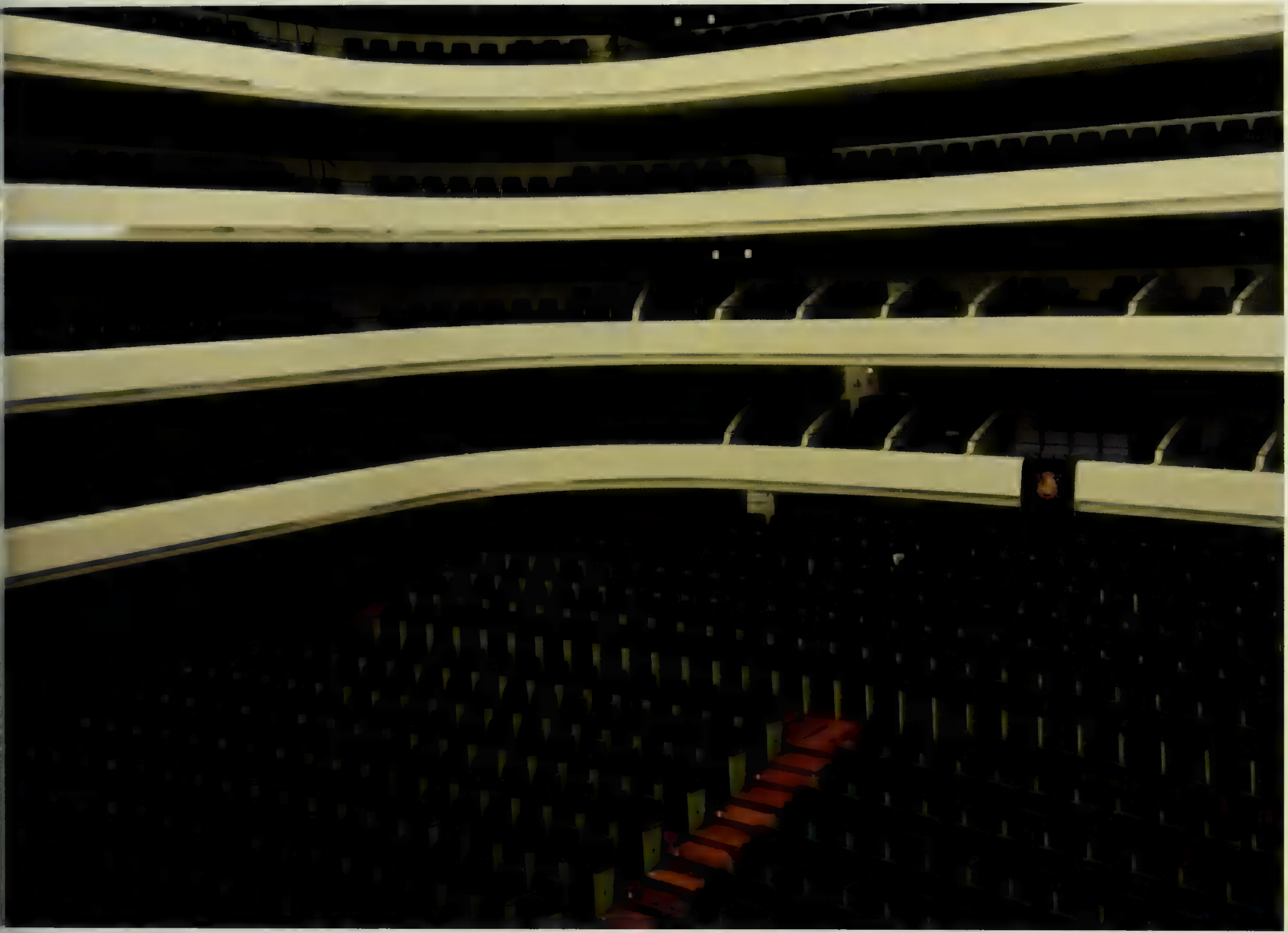
Although such a scheme would require no underpinning, engineers needed to support the original foundation while the immediately adjacent area was excavated. URS Corporation's geotechnical division tested the soil and predicted its behavior, and Silman Associates analyzed stresses the might develop in the building itself. "URS was looking at the bowl of Jell-O, and we were looking at what was sitting on top of it," says Mettam.

The two firms collaborated with the rest of the design team to develop a safe and effective way to dig next to the historic landmark. First, they had to improve the soil along the north edge of the excavation site, adjacent to the existing foundation wall and under the portico steps. They relied on a process called jet grouting that uses a drilling rod to insert [illegible] grout slurry into the ground and thoroughly mix it with the soil. With this technique, contractors created columns of stable, solidified soil extending 21 feet below grade. In addition, they installed ports adjacent to all of the portico's perimeter columns so that compensation grouting could be injected into the soil directly beneath the footings if the historic foundation needed to be releveled at any time.

JEFFERSON DESIGNED THE CAPITOL AS A TEMPLE ON THE HILL, TO BE VIEWED AND APPROACHED FROM THE RIVERBANK.

Subsequently, they built a diaphragm to the south of the jet grouting area. Also known as a slurry wall, it relies on the slurry trench technique, in which short, discontinuous trench sections are excavated and filled with a mudlike substance that maintains the form of the trench and, therefore, the stability of the surrounding soil, but does not harden. A cage of reinforcing steel is dropped into each section, and concrete is poured. The heavier concrete displaces the slurry and cures. The process is repeated for the intervening sections in order to create a continuous retention wall.

As excavation work progressed, the contractor temporarily anchored this wall with a system of tiebacks grouted into stable soil well



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beyond the excavation's zone of influence. Once the framing structure of the extension was completed, they released the tension on the tiebacks.

During foundation and site work, a real-time instrumentation system monitored building movement in three dimensions while inclinometers measured lateral movement in the diaphragm wall and the jet grouting area. The data was collected, processed, and disseminated online so that team members could access it remotely. In particular, engineers closely watched for differences in the behavior of adjacent areas. "The real risk of damage is not from absolute values of settlement, but from differential settlement," says Mettam. Fortunately, movement stayed within acceptable limits.

A diminutive temple on an estate near Staunton, Virginia, provided the model for the visitor center's public entrance.

The finishing touch

Designers easily decided that the visitor center itself should be contemporary in style to clearly distinguish it from the historic building, as is the preference in preservation circles. But determining the style of the new entrance at the bottom of the hill was not as clear cut: Should it reflect the Modern extension or the Classical original?

At the suggestion of Loth, the architect decided to use the Bremo Estate, near Staunton, Virginia, as a model. There, situated on a hill, is a Palladian-style house, designed and constructed around 1820 by one of Jefferson's skilled builders. A miniature Classical monument, known as Temperance Temple, designed by noted architect Alexander Jackson Davis, was built on the grounds of the estate in 1841, but at a lower elevation than that of the house.

The logic was compelling. As Skarmeas explains, most of the buildings that surround Richmond's Capitol Square are Classical in expression, so a pure Modernist entry would seem out of place. Bremo's diminutive temple was modeled after a prototype in Athens—home of the Parthenon, the first temple on a hill. And it stands in relation to its Jeffersonian-styled house much in the same way that the new public entry should stand in deference to the capitol. The temple at Bremo "had the proper pedigree, going all the way to Athens, without copying a Thomas Jefferson building," says Loth.

Set at an angle to the street grid to create a small irregularly shaped plaza, the complex's new public entry features Doric instead of the capitol's Ionic columns, a simplified entablature without a pediment, and a pale yellow hue. It clearly welcomes visitors and prepares them for their journey, but in no way competes with their ultimate destination. ■

AIA/ARCHITECTURAL RECORD CONTINUING EDUCATION

INSTRUCTIONS

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- **Complete the questions below, then fill in your answers on the next page.**
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QUESTIONS

1. The Virginia State Capitol started which American architectural movement?
- **a.** Classical Revival
- **b.** Gothic Revival
- **c.** Queen Anne
- **d.** Victorian

2. Jefferson designed the capitol after which monument?
- **a.** the Pantheon in Rome
- **b.** Versailles in Paris
- **c.** the Maison Carrée in Nîmes
- **d.** Hampton Court in London

3. Why was Jefferson's design for the capitol not followed exactly?
- **a.** the workmen did not know how to read the drawings
- **b.** the work started under a different architect
- **c.** the work started before the drawings arrived
- **d.** the building had been designed for a different site

4. Which factor caused the building's moisture problems?
- **a.** poorly detailed roof drains
- **b.** an improperly functioning perimeter drainage system
- **c.** sealant applied to exterior stucco
- **d.** all of the above

5. Which strategy did the design and construction team not employ to combat the moisture problems?
- **a.** application of a sealant to the exterior stucco
- **b.** replacement of the roof drains
- **c.** installation of a new perimeter drainage system
- **d.** overhaul of the mechanical system

6. Which time period was chosen for restoration of the interior's basic appearance?
- **a.** 1807
- **b.** 1906
- **c.** 1785
- **d.** 1865

7. Designers decided against an underground expansion on the north side of the capitol and extending under the existing structure because of which?
- **a.** such a scheme would have required underpinning
- **b.** it could have caused the foundation to shift
- **c.** it would have been expensive
- **d.** all of the above

8. The design and construction team decided to use which method to improve the soil surrounding the excavation?
- **a.** adding sod to the soil
- **b.** adding clay to the soil
- **c.** inserting engineered grout slurry into the soil
- **d.** inserting reinforcing steel into the soil

9. Which operation did contractors not perform when they built the diaphragm wall along the south side of the jet grouting?
- **a.** excavate short discontinuous sections of trench
- **b.** create a mudlike substance known as slurry
- **c.** temporarily anchor the wall with tiebacks
- **d.** underpin adjacent foundations

10. Which building was chosen as the model for the design of the public entrance to the capitol?
- **a.** a Palladian style house
- **b.** Monticello
- **c.** Temperance Temple
- **d.** the Parthenon

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Program title: "A Revered Jeffersonian Landmark Renewed," Architectural Record (06/07, page 167). 067EDIT1

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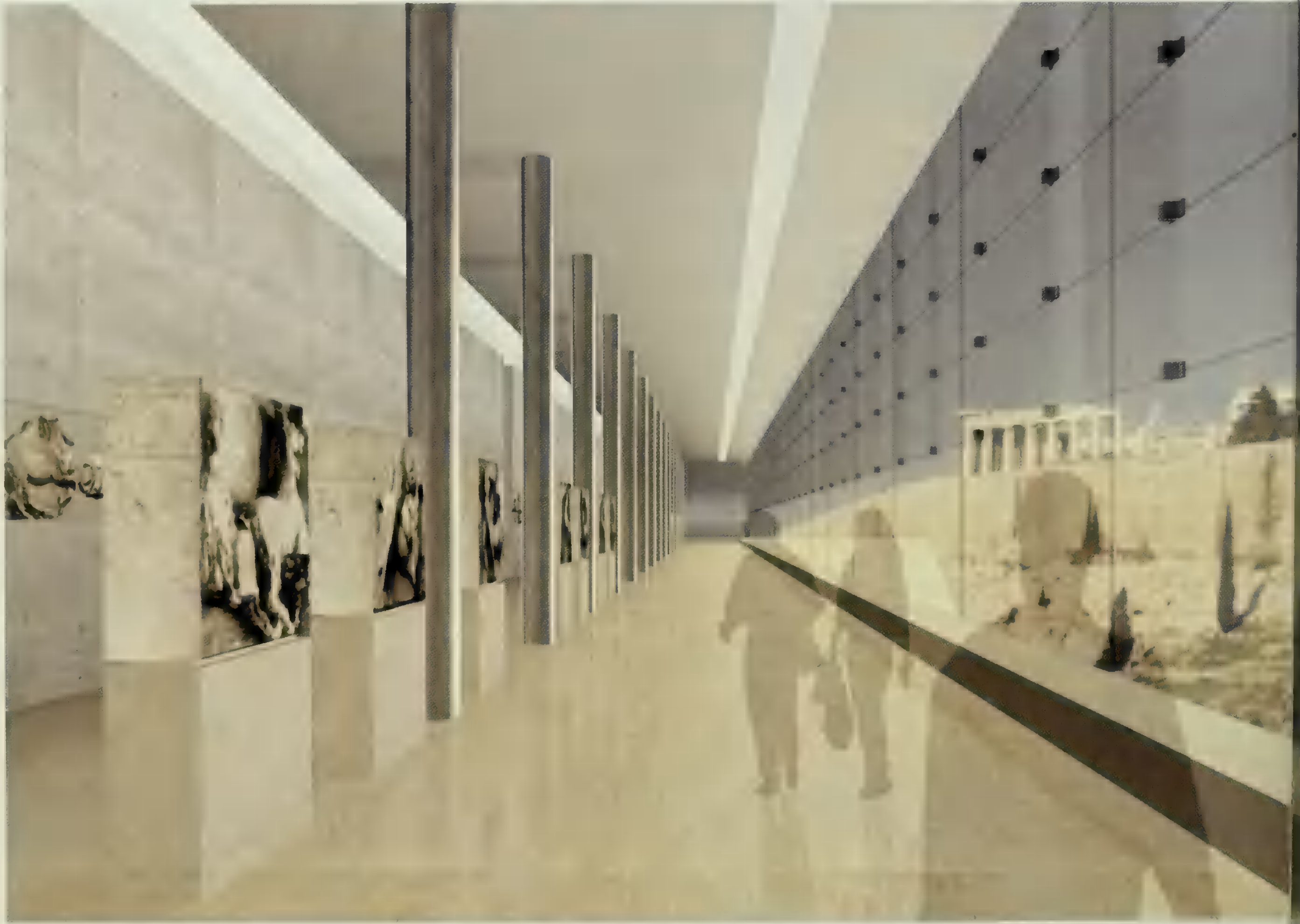
A Temple to Transparency Rises in Athens

A TECHNICALLY CHALLENGING AND LONG-ANTICIPATED MUSEUM DEVOTED TO THE DISPLAY OF ANCIENT ARTIFACTS NEARS COMPLETION AT THE FOOT OF GREECE'S MOST SACRED MOUNT

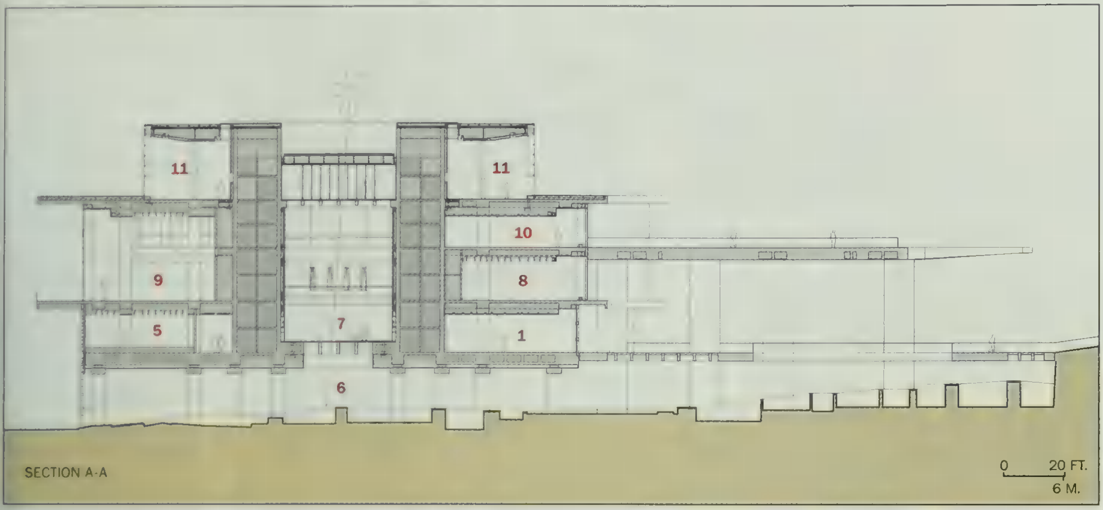


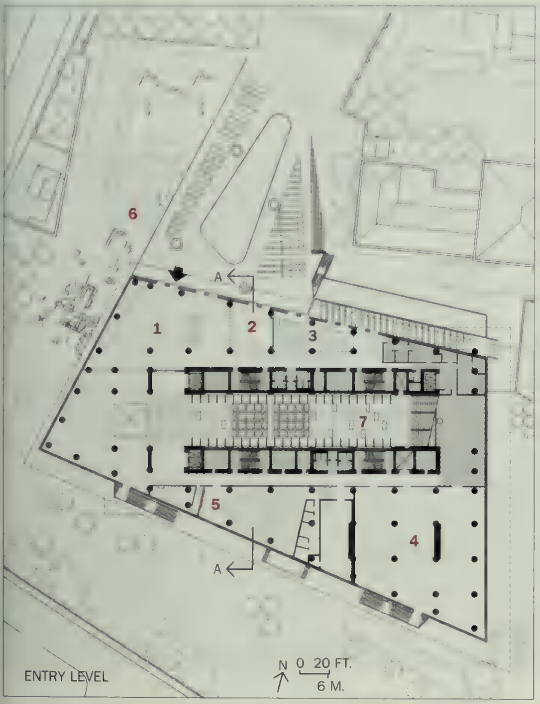
At the top of the museum, a daylight-filled gallery (above and right) providing views of the Parthenon and Athens, will be devoted to display of the ancient temple's surviving marbles.

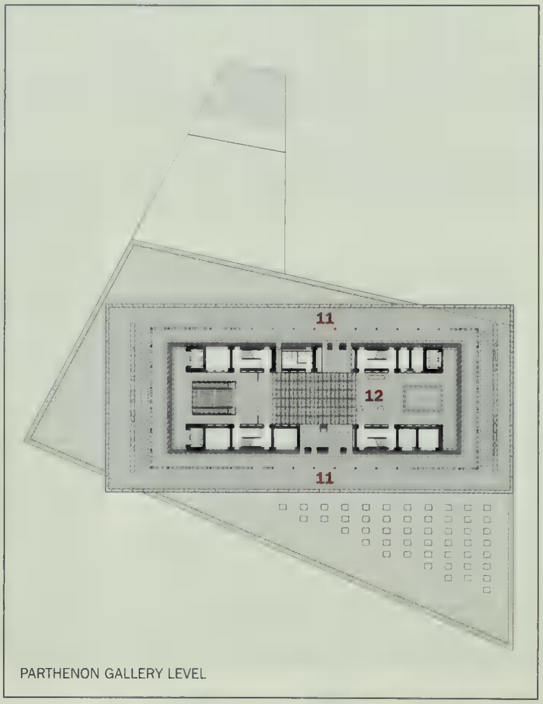
By Joann Gonchar, AIA

At the foot of the Acropolis in Athens, a politically charged and technically complex project first envisioned more than two decades ago is finally nearing completion. The building, the New Acropolis Museum (NAM), will replace a decaying 19th-century predecessor that holds artifacts from the Acropolis and the Parthenon. The new structure was also conceived to serve as an enticement to various institutions in other countries to return to Greece friezes and fragments of the Parthenon held in their collections. In particular, NAM officials are hoping for return of the marble sculptures removed in the 19th century by Lord Elgin, the British ambassador to the Ottoman Empire, and taken to England, where they have been on display since 1816.

Designed by New York City–based Bernard Tschumi Architects, with local architect Michael Photiadis, the 226,000-square-foot NAM is on track for completion of construction late this summer. However, the







1. *Lobby*
2. *Shop*
3. *Cafeteria*
4. *Temporary exhibits*
5. *Auditorium*
6. *Excavations*
7. *Slopes findings gallery*
8. *Post-Parthenon Gallery*
9. *Archaic Gallery*
10. *Restaurant*
11. *Parthenon Gallery*
12. *Athena Nike Gallery*

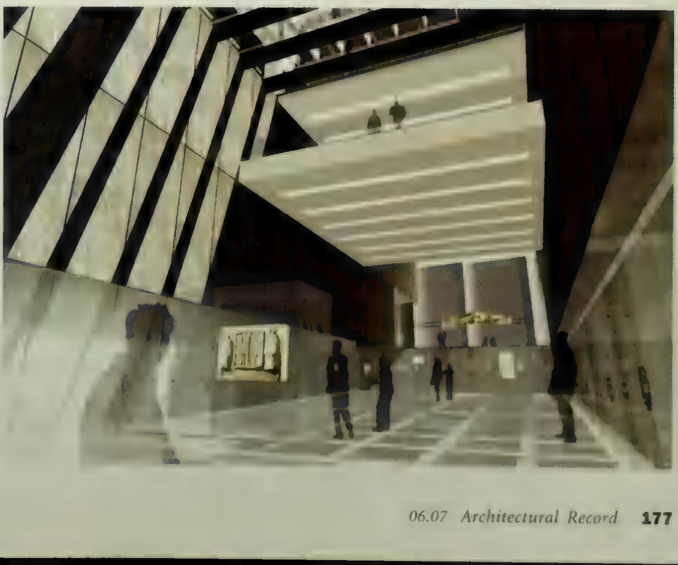
The building is organized around a central skylit atrium space (below). At its base, a glass ramp leads museum visitors from the lobby to the galleries on the second level and allows light from above to penetrate the excavations preserved below.

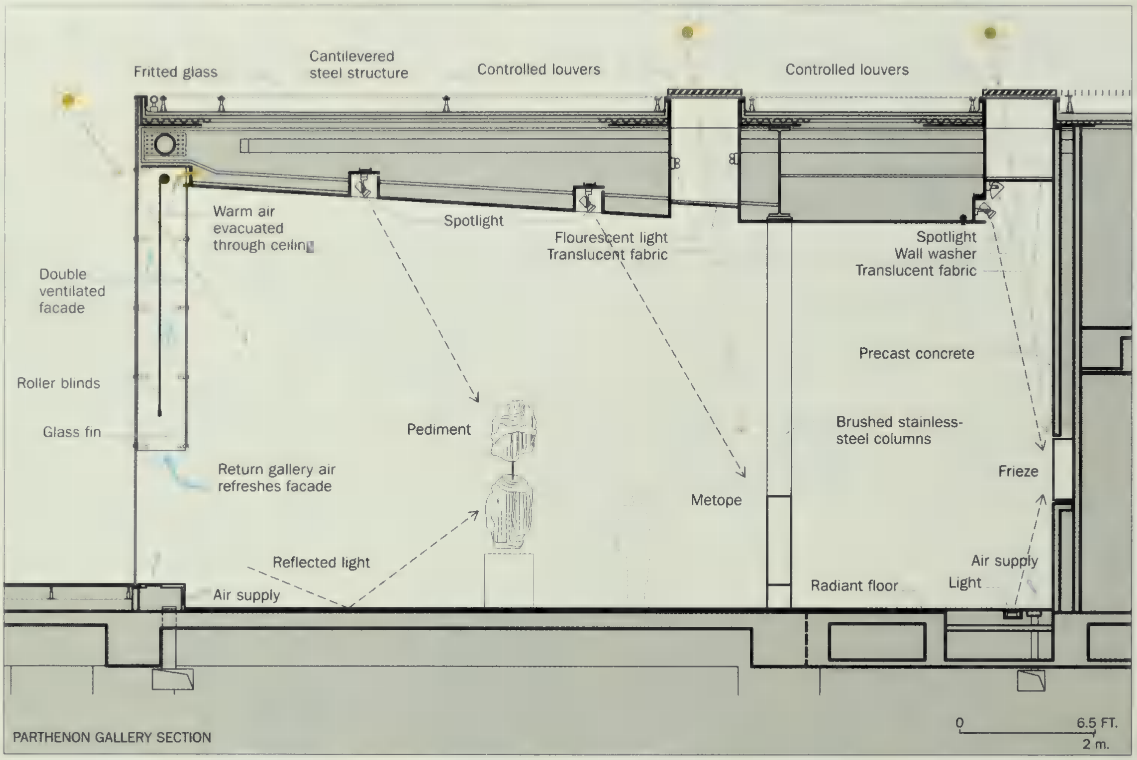
route to this point has been far from straightforward. In the late 1990s, officials scrapped a competition-winning scheme after remnants of late Roman and early Christian settlements were found on the site.

Preserving and providing visitor access to these ruins subsequently became a key programmatic requirement of the competition, won by Tschumi in late 2001. But even after Tschumi's selection, the project encountered many obstacles, including legal challenges from neighborhood residents, archaeologists, and politicians, and a change of contracting firms after construction was already under way.

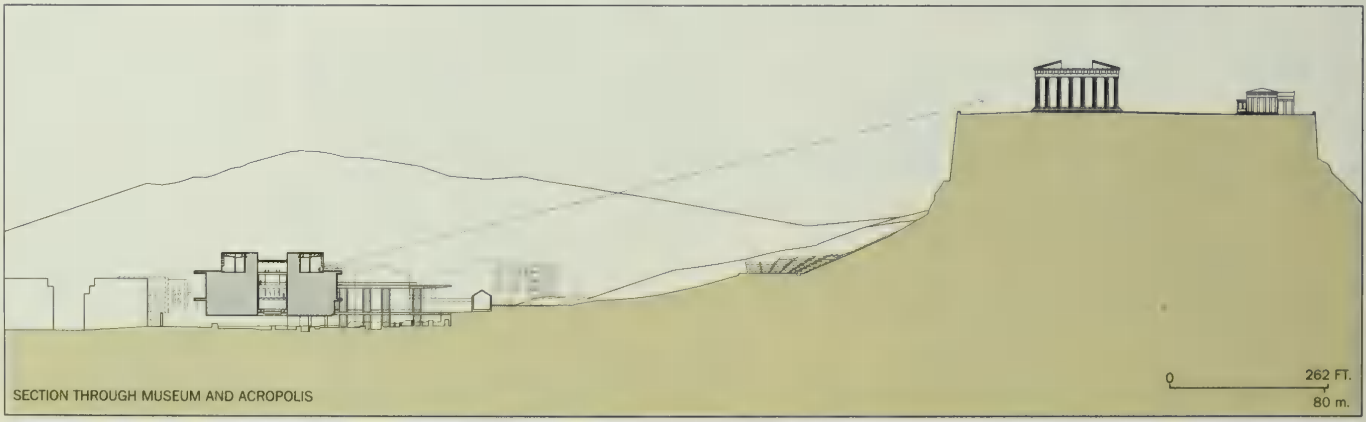
More surprises

In the summer and fall of 2002, when archaeologists discovered even more ruins on the 5.68-acre site, the design team was forced to move and rotate the foundation structural grid. Although design was still in the schematic phase, the process of resolving the conflicts between the excavations and the new building was "traumatic," requiring negotiation of each column





A double facade (left) helps maintain comfortable temperatures in the Parthenon Gallery while providing daylight and views to the ancient temple. Skylights, along with spotlights, wall washers, and discreetly placed fluorescent fixtures help achieve optimum lighting conditions for viewing the sculptures.



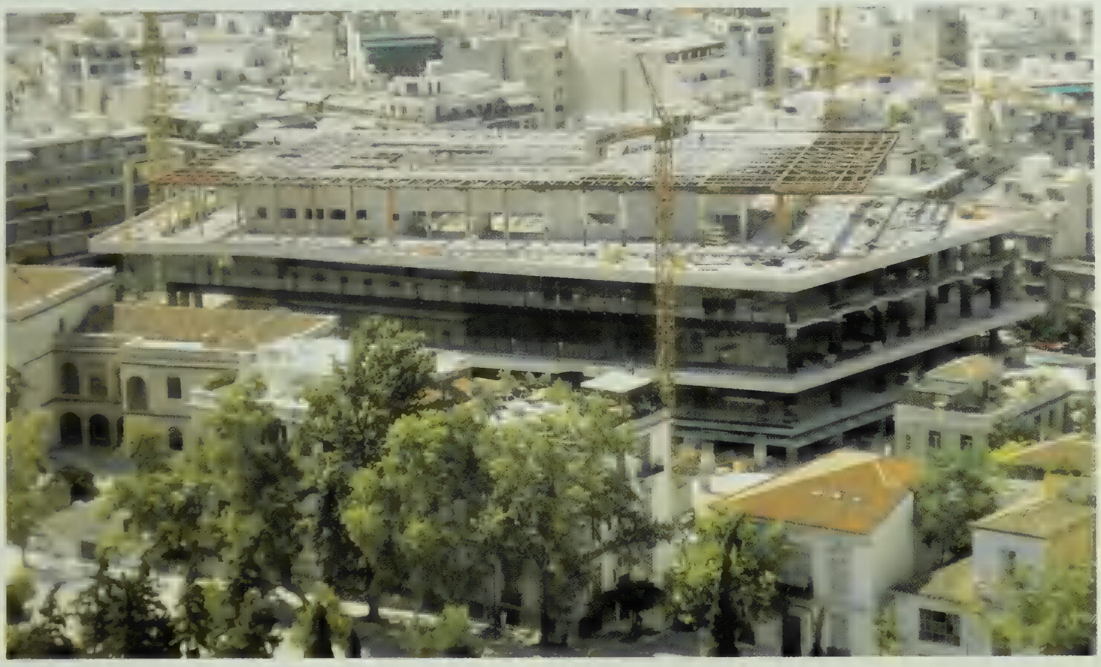
location, says Joel Rutten, Tschumi Architects' project director.

When NAM opens next spring, after a 10-month-long installation period, visitors will enter by way of a bridge that crosses over an area of excavations at the northwest portion of the site. Then, in an ascent that mimics the climb up the Acropolis, they will travel from the lobby, through exhibition spaces organized in a chronological sequence around a skylit atrium, to the top of the four-story building. There, surviving Parthenon frieze elements, of which Greece currently possesses about half, will be displayed, surrounded by a glass-enclosed court. The dimensions and orientation of the space will replicate the 2,500-year-old temple's cella.

This top-floor Parthenon Gallery, supported by a steel post-and-beam cantilevered structure, sits on top of a three-story reinforced-concrete base. The lower floors, trapezoidal in plan to maximize the constricted site, [illegible] field of 43 pilotis and seem to hover over the excavations.

Sandwiched between the pilotis and the lobby level is a system [illegible] isolators. Because they minimize the transfer of ground motion

The Parthenon Gallery's steel structure sits atop a three-story concrete base (right). The whole is raised above the excavations on pilotis (below left). Seismic isolators are sandwiched between the grade floor structure and the lobby level (below right and opposite, bottom).



to the structure above in the event of a temblor, the isolators allowed designers to create a more transparent and open museum than they otherwise could have in earthquake-prone Athens. "We did not have to encumber the building with many large walls," says Leo Argiris, a principal in the New York City office of Arup. His firm, with Athens-based ADK, was the project's mechanical and structural consultant.

Climate and clarity

Transparency, especially that of the 19-foot-tall glass-enclosed Parthenon Gallery, is one of the building's defining qualities. Here, visitors will be able to view the marbles in daylight and also see, about 1,000 feet away, the ancient temple where they were originally installed. Obviously, creating a glass box in a climate where temperatures can reach 120 degrees was not an easy task.

To mitigate heat gain in the brutal climate, the design team created a ventilated facade for the Parthenon Gallery. The double skin, hung from the steel roof structure, has an outer layer of double-glazed low-iron glass with a glare-cutting frit. The density of the pattern decreases from 100 percent near the ceiling to zero at eye level, so that views of the Parthenon and Athens are not obstructed. The inner layer, which is suspended about 8 feet above the floor, is made of single-glazed laminated low-iron glass. Separating the two layers are 26-inch-wide vertical glass fins with roller blinds installed between each to further control glare.

The gap between the glazed surfaces is part of a displacement ventilation system. Cool air supplied at the floor is drawn through the cavity and evacuated at the top. A chilled slab also helps maintain comfortable gallery temperatures. The arrangement keeps the facade and ceiling free of distracting mechanical apparatus, explains Raymond Quinn, Arup principal. "Nothing detracts from the view toward the marbles or the Parthenon." ■

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Technicalities

Up periscope and down building in Chicago

By Russell Fortmeyer

Nearly 100 yards lie between Chicago's Museum of Science and Industry and Lake Michigan. So when Goettsch Partners began the design of a subterranean hall to exhibit the museum's German-made U-505 submarine, the architects found themselves in the unlikely—and ironic—position of fighting to keep the lake's water from submerging the vessel.

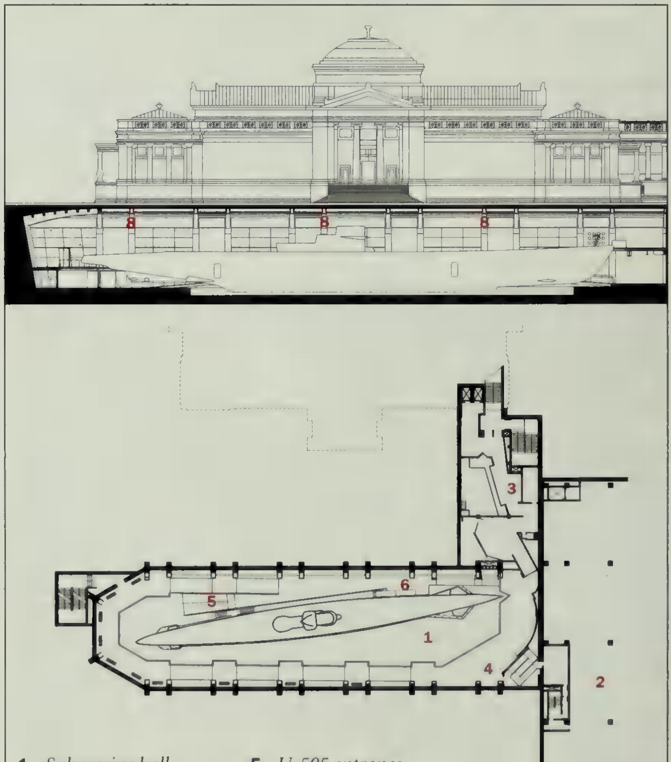
"It's possible the lake could rise or we could get a 500-year rain," says Michael Kaufman, AIA, a partner at Chicago-based Goettsch. "So we have drain tiles around the perimeter and twin sump pumps with diesel generator backup." Water aside, the land-based journey of the U-505 from the 1944 capture by the Allies off the coast of West Africa to a new basement adjacent to the museum involved a substantial amount of planning.

Acquired by the museum in 1954, the 700-ton submarine had for years rested outside, where it had seriously deteriorated. The museum brought Goettsch on board to design the over-40-foot, below-grade exhibition hall and connect it to its original Charles Atwood–designed 1893 building through a nearly 80-foot-long underground hallway (the plaster building was actually reconstructed in stone in 1933). The new splayed, concrete structure, designed to maximize resistance to the compressive forces of the surrounding earth as well as to make the space appear larger, has the feel of a submarine "pen," which Kaufman says was intentional, since the Germans launched submarines from hidden pens for secrecy.

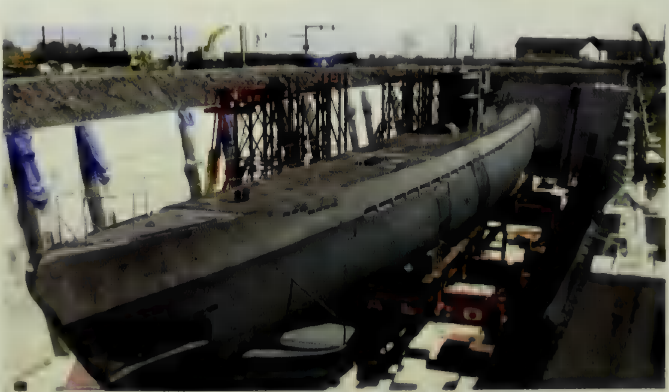
Contractors placed the 270-foot-long sub on 18 sets of dollies before slowly moving it parallel to the new 85-by-315-foot "bathtub" at the museum's northeast corner. The sub—freshly restored—was then "launched" onto a forest of dense logs constructed inside the future hall. Workers would jack up the sub, remove some logs, and then carefully lower it. Finally, after two weeks, they nestled the U-505 into place on a 16-inch foundation slab. Only then could the contractor install the 85-foot-long tapered-steel box beams and close up the space.

The finished hall, kept clean by integrating mechanical systems into the canted walls and placing other services in a mezzanine ceiling, has proved popular with visitors. Kaufman says museum attendance spiked 20 percent in 2006, the first year it opened. Although Kaufman admits he and his staff were motivated in part by their love of the classic 1981 Wolfgang Petersen submarine film *Das Boot*, the hall conveys anything but a sense of claustrophobia. ■

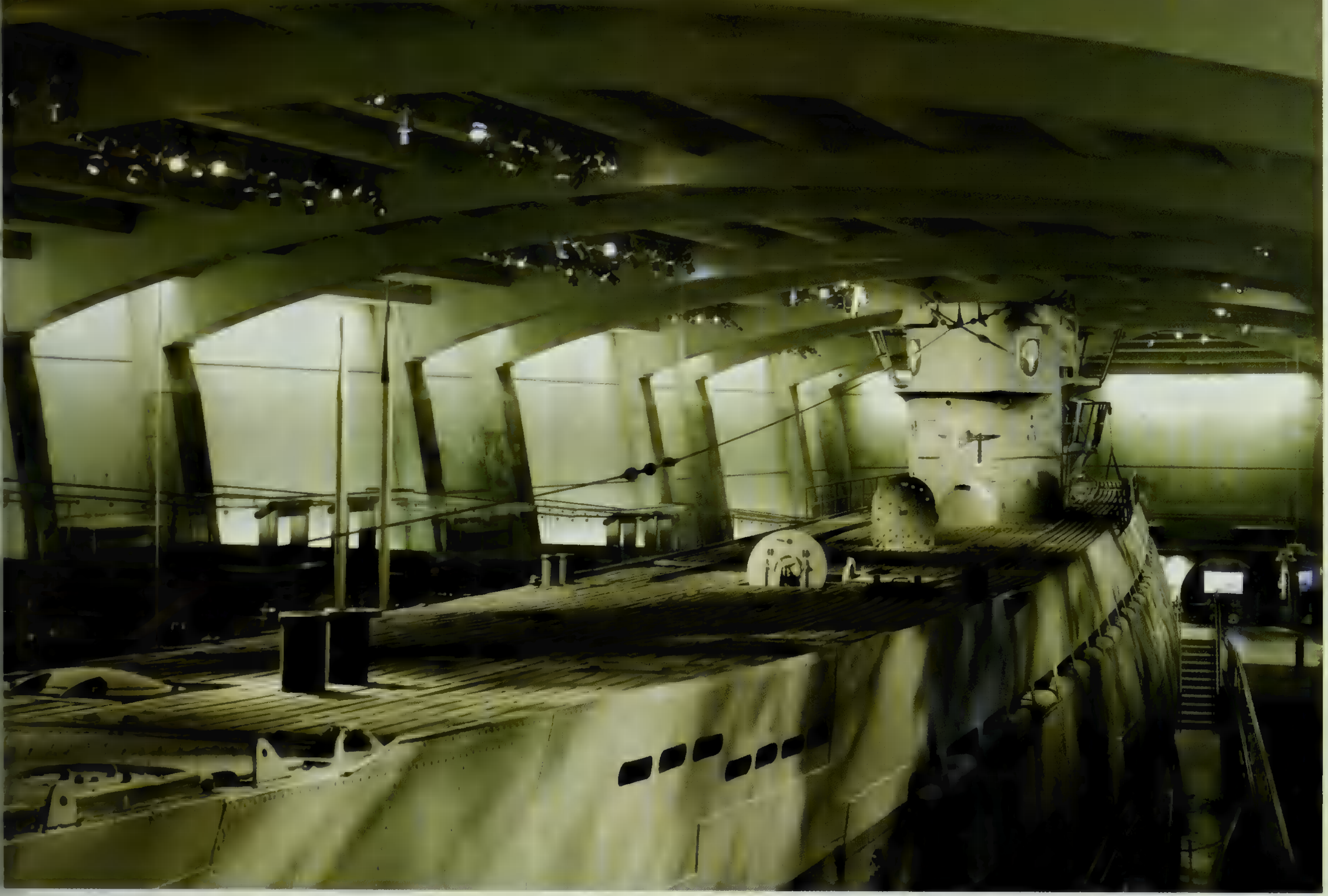
[illegible] To rate this project and learn more, go to **architecturalrecord.com/tech/**.



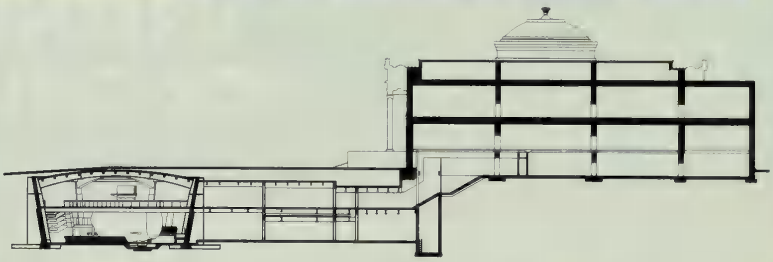
1. *Submarine hall*
2. *Parking garage*
3. *Museum connection*
4. *Mezzanine*
5. *U-505 entrance*
6. *U-505 exit*
7. *Air vents*
8. *Tapered box beams*

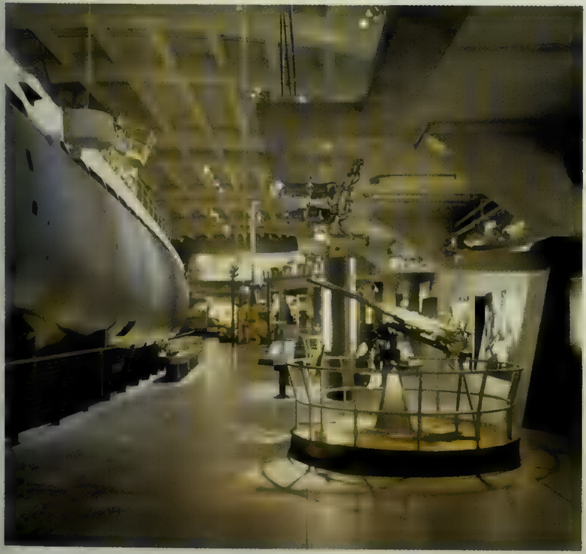


Once lowered into place, contractors installed a steel structure and deck to cover the hall (right), which is 30 feet below Lake Michigan's water level.



The boxed beams taper from 24 inches at the center to 54 inches at the sides. The canted, cast-in-place concrete walls suggest the space is larger than its 27,000 square feet.





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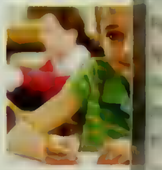

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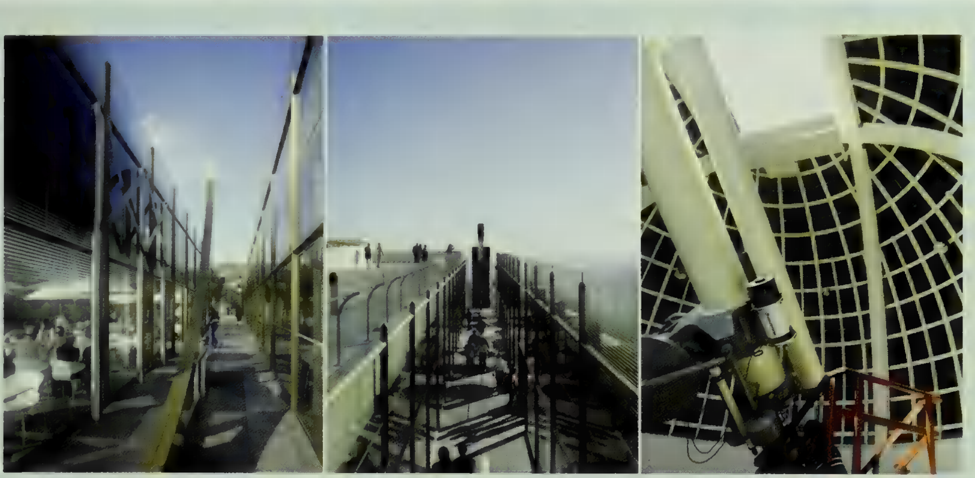
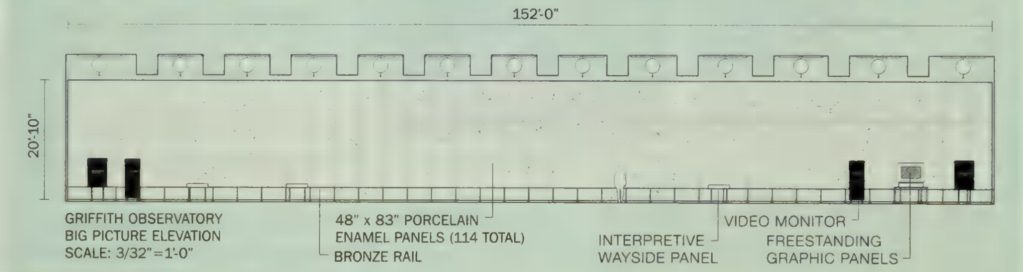
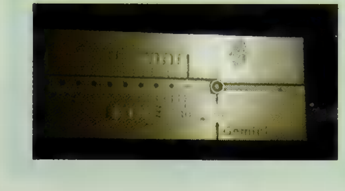
Tech News & Reviews

The cosmic ballet of the Griffith Observatory







Architects restored the Griffith's 12-inch Zeiss optical telescope enclosure (top right), while C&G Partners and Carpenter Norris Consulting collaborated on the "noon mark" (top left and middle). The noon mark indicates the day of the year (left). The *Big Picture* (above) illustrates a slice of the galaxy.

Astronomy qualifies as one of those rare fields that have flourished without the burden of producing mountains of physical evidence for inspection. Its researchers record, hypothesize, theorize, and render cosmic spectral occurrences, free from the sorts of challenges that faced C&G Partners as the firm undertook the complete redesign of the exhibitions in Los Angeles's recently renovated and expanded Griffith Observatory.

"People are only there for a few minutes, so we tried to emphasize things that were grand and inspiring, since you can't get a master's degree from an exhibit," says C&G's partner in charge, Jonathan Alger.

Although a few exhibits remain from the originals, including the popular Tesla coil and Foucault pendulum on the first floor, C&G reconceived the observatory around three main exhibition halls that focus on basic astronomy, the technology of observation, and deep space.

Chief among the new installations, the so-called *Big Picture*, located in the basement expansion designed by Pfeiffer Partners (see page 154), takes a snapshot of the universe equal to the area of Albert Einstein's right index finger held at arm's length and blows it up to an image 152 feet long and 20 feet high.

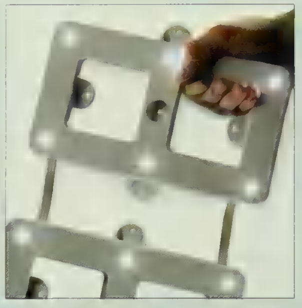
Printed and then baked on porcelain enamel panels installed along the north side of the Depths of Space gallery, the six-color-process photograph represents a detail of the Virgo Cluster of galaxies, which Alger says appears as the most visually dense cluster noticeable from the Northern Hemisphere. An astronomer at the nearby California Institute of Technology shot the picture, which took two months to process. C&G estimates the picture is the largest astronomically accurate image ever produced. A fly-through animation on a television nearby indicates to viewers the three-dimensional properties of the picture.

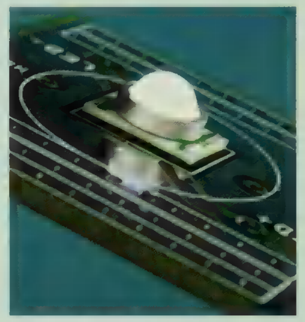
Historically, the Griffith's role as a public institution for astronomy has expressed itself instrumentally, with aspects of the building operating as devices for understanding the sky. The building's three domes house a planetarium, an optical telescope, and a solar telescope, respectively. Pfeiffer and Levin & Associates Architects restored these spaces, including the mechanisms that open the two smaller domes to allow observation.

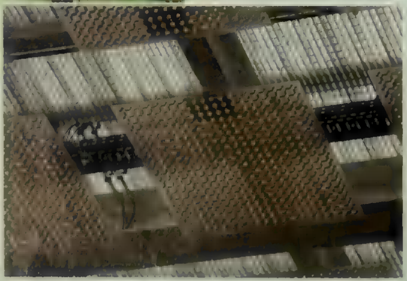
Additionally, Pfeiffer and C&G engaged designers James Carpenter and Davidson Norris for an exterior installation of a "noon mark" in the Gottlieb Transit Corridor along the basement expansion's exposed western elevation. This device, located along a north–south axis, directs the noontime sunlight through a stainless-steel aperture and onto a bronze strip marked with the annual calendar. Aside from precisely telling visitors the day of the year (the instrument was produced by fabricators that make components for the nearby Jet Propulsion Laboratory), a fiber-optic sensor will eventually transmit light to an adjacent LED map of constellations that will indicate the position of the sun in the galaxy. "These stars are typically hidden by the sun," says Norris. Since the sun hits the same mark two different times per year, Norris says they plan to "install a big switch to transfer between the two halves of the year." *Russell Fortmeyer*

LEDs in Hamburg (and Lightfair)

GE's Tetra PowerGrid (right) aims to replace fluorescent lamps, while the company's VIO LED (below left) is for conventional applications. Cree is attempting to make its white LED (below right) an ANSI standard.







Nimbus, a lighting-fixture-manufacturing and design firm, installed 180,000 LEDs in the ceilings of a new expansion of the Hamburg, Germany, Chamber of Commerce designed by the firm of Behnisch Architekten (left and below).

Although the color and lumen output of white LEDs has improved markedly in the last few years—manufacturers exhibited a plethora of new LED products at last month's 2007 Lightfair International in New York—their use has often been relegated to special effects and one-off installations that capitalize on the technology's novelty.

Nimbus, a Stuttgart, Germany–based lighting manufacturer, collaborated with Stuttgart architects Behnisch & Partner on an installation of 180,000 LEDs to light five new floors of offices for the Chamber of Commerce in Hamburg, Germany (see related story, page 128). The LED panels, uniformly staggered across the ceiling plane, modulate light output between 10 and 50 footcandles, depending on the activity underneath, and can shift between colors to add play to what could have been more static spaces.

Some manufacturers place phosphor-coated domes over blue lamps to produce pure white light in much the same way phosphors are used with fluorescent tubes. Others mix blue, green, and red lamps to make white and any other color. General Electric Lumination (GE) introduced several products using white LEDs at Lightfair, including an easily installed grid light for backlighting signage that GE argues will offer longer lamp life (up to 11 years) and increased energy efficiency.

Greg Merritt, director of corporate marketing for LED manufacturer Cree, says a new generation of white LEDs is lasting as long as 50,000 hours while still maintaining a lumen output of 70 percent capacity, although that is not a guarantee. The ubiquity of white LED light-fixture applications has tended to obscure the fact that the technology, which suffers from high cost and intense heat output, has many critics among lighting designers, architects, and researchers. As noted in the January/February 2007 issue of *Professional Lighting Design*, recent research on the color output under cool blue light, such as that found with white LEDs, suggests adverse health effects like increased stress levels and higher sex hormones for occupants under prolonged exposure. The phosphors used in many bluish-white LEDs absorb ultraviolet light (invisible UV light is just to the left of blue in the color spectrum), so while your body's reaction to blue light is to prepare for UV absorption, the lack of UV upsets this norm.

That the lighting industry has thus far not developed a standard for rating white LEDs has further hampered the industry, although Cree has been working to establish its white LED lamp characteristics as an American National Standards Institute–approved standard. Designers may find it difficult to distinguish the qualities of GE's new VIO LED, which uses a phosphors-coated lens on a violet-chip base to maintain a stable color, versus Cree's Warm White XLamp LEDs, which uses different phosphor coatings to produce similar effects. Phillips Lumileds, Nichia, and Osram-Sylvania, among other companies, also produce versions of white LEDs.

"When you tell the whole story, LEDs don't look as good as you would expect," cautions Ian Ferguson, a professor with the School of Electrical and Computer Engineering at the Georgia Institute of Technology. Ferguson, who addressed an audience at Lightfair on the intricacies of the emerging white LED market, says excess heat and inconsistent chromaticity (color rendering) plague the market, while some white LEDs lag fluorescent lamps in operating life. *R.F.*

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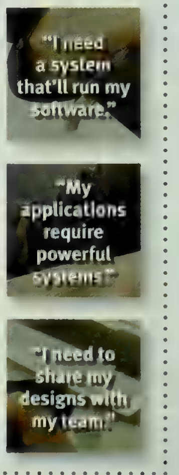
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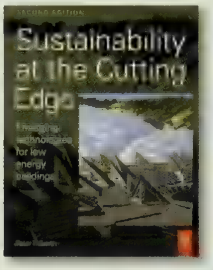
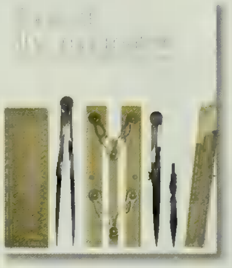
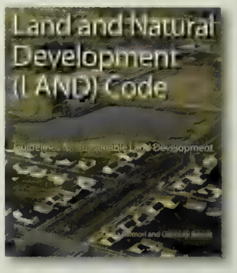
Failure, sustainability, and tools

This month, we look at two books that address sustainable-design topics, one book that artfully looks into the history of design tools, and another on materials failure. Surprising evidence of the need for architects to specialize in particular technologies and processes emerges from all four books.


SECOND EDITION
Sustainability at the Cutting Edge
Emerging technologies for low energy buildings




Land and Natural Development (LAND) Code
Guidelines for Sustainable Land Development

Failed Stone: Problems and Solutions with Concrete and Masonry, *by Patrick Loughran. Basel, Switzerland: Birkhäuser, 2006, 152 pages, $79.*

Geared toward architects and full of gorgeous pictorials and details of well-known Modern and contemporary architectural projects, *Failed Stone* provides just enough information for the armchair materials specialist without becoming weighted down by excessive explanations. The book explores such failure concepts as thermal hysteresis (think of this as warping due to exposure), progressive collapse and blast design, efflorescence, discoloration, and leakage, while also focusing on design approaches and material attributes.

For example, the chapter on surface effects, which begins with a discussion of the nonuniform color and texture of the self-compacting concrete used for Zaha Hadid's 2005 Phaeno Science Center in Wolfsburg, Germany, includes a concise explanation of various finishing treatments for concrete, as well as hints for avoiding problems.

Furthermore, Loughran concludes each chapter with lessons learned: in the chapter cited above, letting us know "concrete cracks." These lessons really just summarize [illegible] ideas, though the short chapters [illegible] nontechnical explanations [illegible] speak for themselves. *R.F.*

Sustainability at the Cutting Edge: Emerging Technologies for Low Energy Buildings, *by Peter F. Smith. Oxford, U.K.: Architectural Press, 2007 (second edition), 171 pages, $49.95.*

Not quite a technical manual, *Sustainability at the Cutting Edge* lays out a fairly broad array of sustainable building technologies currently in use in architecture. It begins with a transcript of a lecture, "Climate Change and Sustainable Energy," by John Houghton, which places the sustainable revolution in context and lays out the usual retinue of dire environmental warnings.

Its main chapters—written with a decidedly European focus—scrutinize such topics as solar thermal power, low-energy cooling, geothermal energy, fuel cells, and photovoltaics. This information has a sell-by date, however, which precludes much of its value. The photovoltaic chapter, to cite one example, reads like a laundry list of the industry at the time the book was written. Five minutes on Google would probably return a more helpful overview of current issues.

But Smith also focuses on more exploratory opportunities for sustainable design, like wave and tide energy, a hydrogen economy, and micro-hydro, before concluding with short case studies on experimental projects such as Arup's BedZED in the United Kingdom. *R.F.*

Tools of the Imagination: Drawing Technologies from the Eighteenth Century to the Present, *by Susan C. Piedmont-Palladino. New York: Princeton Architectural Press, 2007, 128 pages, $29.95.*

One might expect *Tools of the Imagination* to be a catalog of beautiful but obsolete objects from a history of architectural drawing implements. But while it does document many ivory, brass, and mahogany artifacts, it is more ambitious.

The book, which grew out of the exhibition of the same name held two years ago at the National Building Museum, in Washington, D.C., investigates the relationship between the design process and the various tools that architects depend on. Although slender, the book covers much ground, from the history of the most prosaic of drawing implements—the pencil—to the impact of the computer, and especially building information modeling, on architectural practice and buildings themselves.

The publication is for the most part visually pleasing. However, one unfortunate aspect of it is the silver ink selected for the text. Although it does mimic graphite on paper, the print is challenging to read unless the book is held at just the right angle in just the right light. The effect is an annoying distraction from otherwise thoughtful and thought-provoking content. *J.G.*

Land and Natural Development (LAND) Code: Guidelines for Sustainable Land Development, *by Diana Balmori and Gaboury Benoit. Hoboken, New Jersey: John Wiley & Sons, Inc., 2007, 243 pages, $70.*

This book proposes a set of guidelines for ecologically sound land development reminiscent of the U.S. Green Building Council's LEED rating system. Exploring such topics as water conservation, stormwater management, and habitat restoration, it offers strategies for minimizing the disruption of development and assigns points based on potential benefits.

Architects, landscape architects, and planners should find *Land and Natural Development (LAND) Code* a thorough and accessible primer. The concepts are presented in straightforward language and illustrated with visually somewhat dry but otherwise helpful photos and diagrams.

One disappointment is that the book offers no suggestions for how its proposed rating system would be implemented or how compliance would be verified. Also, the last chapter is a missed opportunity. Although it presents many worthwhile projects that have successfully applied some of the concepts outlined elsewhere in the text, by applying the LAND Code checklist to some of these case studies, the book could have better demonstrated the system's potential. *J.G.*

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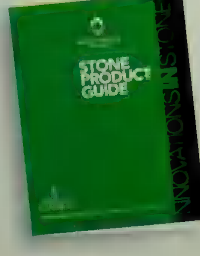

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Newforma Project Center
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Managing the massive amount of project-related e-mail generated on any given day can tie up an architect for hours. Among other features, the fourth edition of Newforma's Project Center addresses that by simplifying the process of archiving project-related e-mail, correspondence, and files onto project-specific file networks internally hosted on a firm's server. The software plugs directly into Outlook, where users can search e-mail and attachments, as well as create a log for following up on important e-mail. The comprehensive search feature also looks inside CAD files, including x-refs. Annual subscription rates for Project Center vary by features. *R.F.*

Impression
Autodesk
www.autodesk.com
Microsoft Windows Only

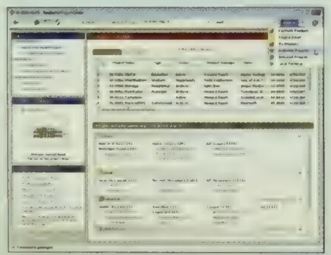
This product is for CAD users who want to create rendered images directly from 2D drawings in DWG or DWF format. It is geared toward quick production of loose, seemingly hand-drawn illustrations, rather than slick, photorealistic visualizations. Impression can reproduce the effects of a variety of media, including marker, pencil, and watercolor. Styles can be customized and applied to an entire layer or to individual geometries within a drawing. And if the original CAD file is subsequently modified, users need not start the rendering from scratch, since the illustration can be readily updated. A free 40-hour trial of the $495 software application is available for download on the Autodesk Web site. *J.G.*

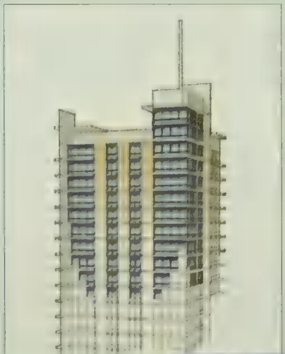
HP Designjet T1100 and T610 Printer Series
Hewlett-Packard
www.hp.com

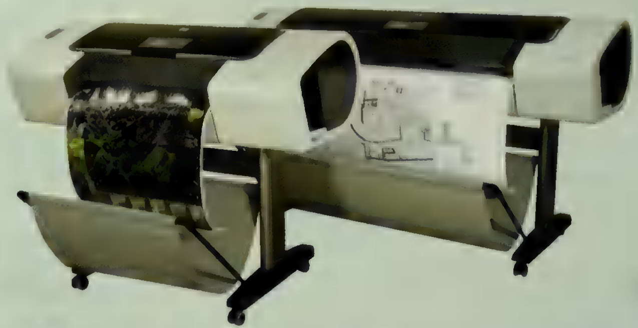
HP's new Designjet series speed up printing, shortening large, color-drawing printing times to as little as 35 seconds. Both the T1100 (pictured below) and T610 series include so-called three-black ink sets that produce true gray, which HP argues will improve the accuracy and detail of your prints. The network-enabled T1100 series comes in 24-inch and 44-inch models and, depending on features, costs between $3,595 and $6,396. The T610 series, designed for personal use, costs $2,595 for the 24-inch and $3,995 for the 44-inch model. Both series work for either a PC or Macintosh and include one-year warranties. *R.F.*

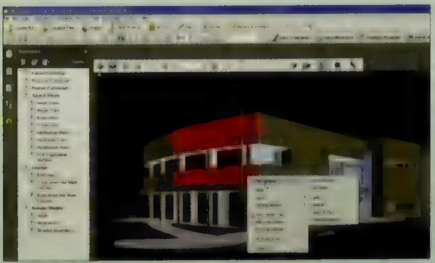
Adobe Acrobat 3D Version 8
Adobe
www.adobe.com
Microsoft Windows Only

Architects have found that the BIM revolution has produced not only good three-dimensional models, but also gargantuan file sizes that sometimes make sharing information among consultants difficult. Adobe has addressed this through an upgrade to its Acrobat 3D software (retails for $995, or upgrade an existing version for $545), which converts BIM models into compressed files viewable in the company's Reader platform. The software enables viewers to fly-through models, look at detailed annotated sections, and make comments. Users can even convert CAD file types directly to a PDF even if they don't have the CAD program on their computer. *R.F.*

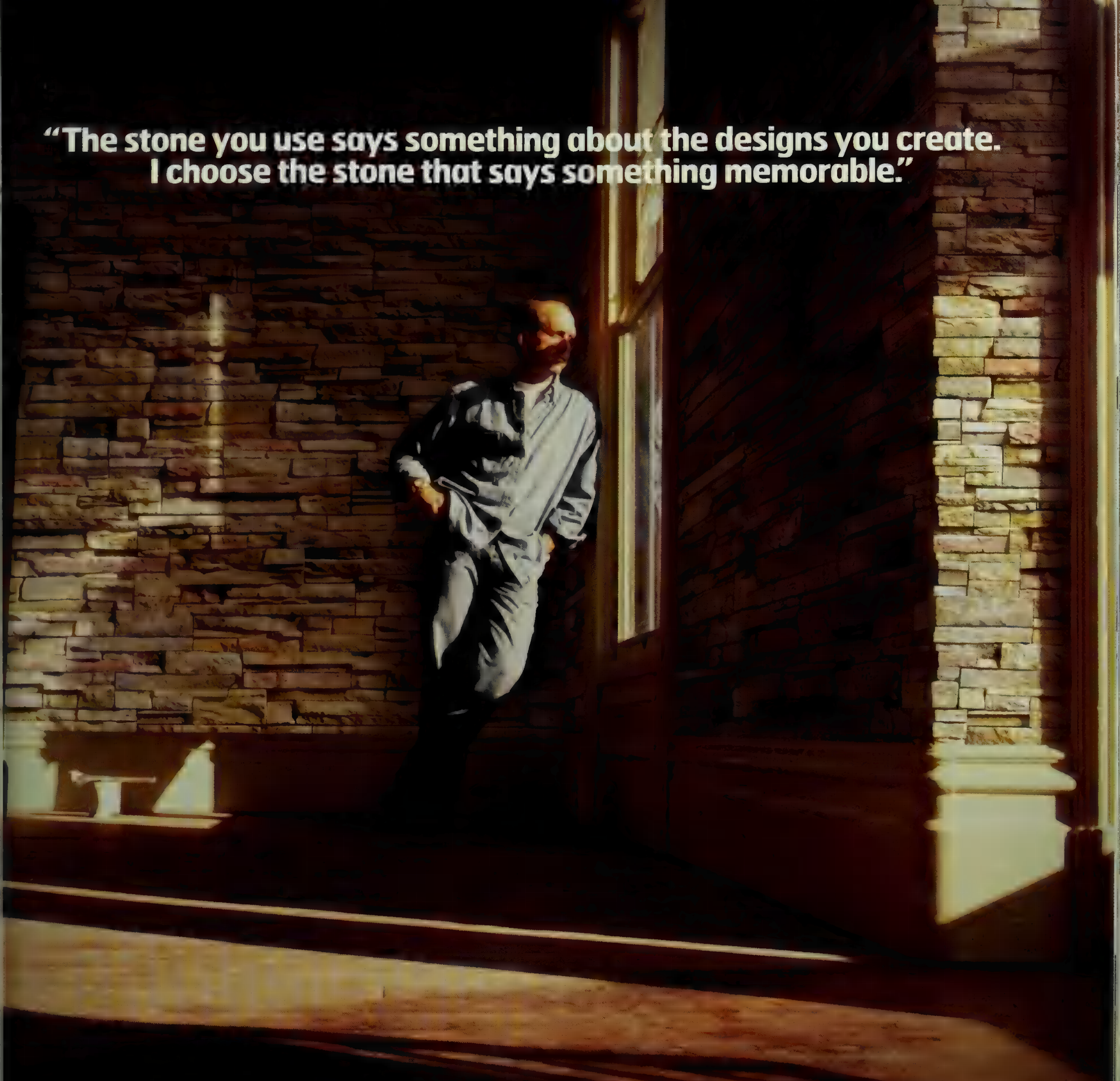








Newforma's Project Center (above) combines project data, such as e-mail, transmittals, and submittals, into a single server-hosted site. Impression can reproduce the appearance of various media, such as marker or watercolor (above right and right). HP's new printers (top right) speed up large-scale printing. Adobe Acrobat 3D allows the sharing of complex BIM models for users without access to CAD programs (bottom right).



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EARN ONE HSW LEARNING UNIT

Integrated BIM and Design Review for Safer, Better Buildings

How project teams using collaborative design reduce risk, creating better health and safety in projects

Denver Art Musuem, Frederic C. Hamilton Building, CO, USA
Courtesy of Arup, New York, NY

BIM was used extensively to design and coordinate the new Frederic C. Hamilton Building at the Denver Art Museum. The results helped to improve safety on the job site as well as improve the safety and health of building occupants and visitors.

Provided by NavisWorks

By C.C. Sullivan

Most architecture, engineering, and construction professionals agree it's a foregone conclusion: building information modeling (BIM) heralds a new era in project delivery. Yet what's most significant today is the expanding power and benefit of BIM—the collaboration tools that enhance and integrate these database-driven, 3-D-capable applications. And the benefits of these BIM-driven solutions now accrue directly to facility end-users and occupants.

"BIM has moved from if to when, and from when to how, which is what people are focused on now: Establishing a common understanding of what has to go into the model when it moves from the design team to the construction team," says Rick Lowe, a partner in the Philadelphia law firm Duane Morris LLP.

On the one hand, BIM applications and add-ons allow project teams to enhance the sustainability and safety of their buildings. On the other hand there are design-review tools that allow disparate BIM platforms to communicate seamlessly, furthering and ensuring the same goals. These graphically explicit applications also support strong teaming environments and help ensure that the project vision is shared among all stakeholders. The result includes less risk for the team, the client, and the authorities having jurisdiction (AHJs), as well as safer, more effective structures for the owners and occupants.

Imagine the integrated delivery of a project. The architect has a BIM model; the mechanical/electrical/plumbing (MEP) engineers have a BIM model; and the structural engineer and other consultants may use BIM as well. Then the contractor has a model for use in phasing and sequencing the work, and major suppliers—the structural steel fabricator, for example—use a 3-D environment to detail and fabricate building components. Ideally, these "authoring tools" should interconnect: they should either be created with the same applications or "flow" from the originating architect/engineer's or owner's BIM model.

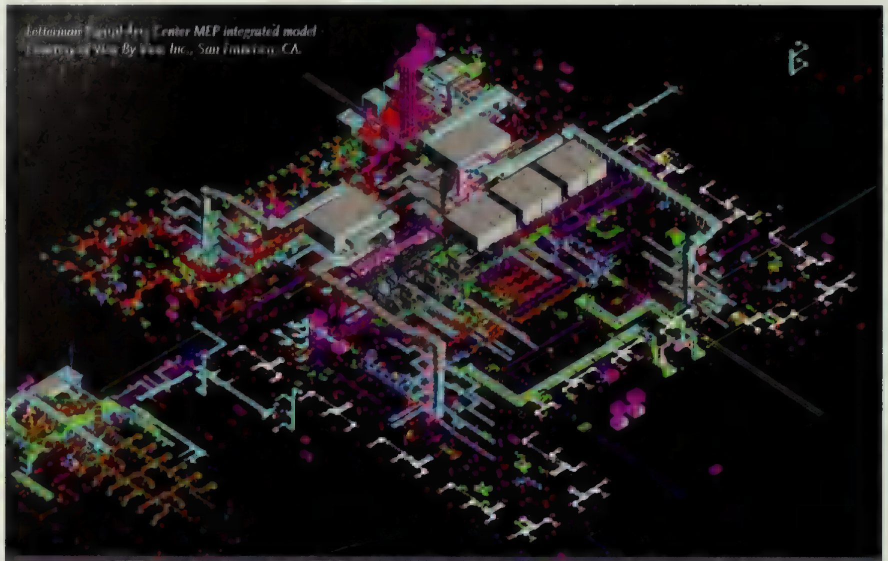
CONTINUING EDUCATION

Use the learning objectives below to focus your study as you read **Integrated BIM and Design Review for Safer, Better Buildings.** To earn one AIA/CES Learning Unit, including one hour of health safety welfare credit, answer the questions on page 195, then follow the reporting instructions or go to the Continuing Education section on archrecord.construction.com and follow the reporting instructions.

LEARNING OBJECTIVES

After reading this article, you should be able to:

- Apply the productivity and safety benefits of operating in a collaborative design process.
- Communicate the use of 3-D graphic design tools across multiple organizations using diverse technology platforms, resulting in better, safer outcomes.
- Evaluate the use of integrated design tools, BIM and design review for reducing project uncertainties, waste, risk, and creating safer projects for owners and developers.


Letterman Digital Arts Center MEP integrated model
Courtesy of View By View, Inc., San Francisco, CA

MEP coordination using BIM and design-review technology can improve designs, system efficiency, job site scheduling and operational safety.

In reality, however, there may be four different BIM solutions used by these various "authors." So design review, or a collaborative production environment, is critical to ensuring successful project resolution: greater efficiencies and greater profits. "Without design review there would be no BIM coordination process as we know it today," says Mieczyslaw (Mitch) Boryslawski, Assoc. AIA, of View By View Inc., a BIM consulting firm based in San Francisco. "There are off-the-shelf display technologies available in which one can assemble such a large amount of 3-D data into a single model," says Boryslawski. "The compression technology and the ability to assemble large and complex 3-D models from almost any CAD application makes this application a must in the project-management tool box."

> ***...there are design-review tools that allow disparate BIM platforms to communicate seamlessly, furthering and ensuring the same goals.***

As BIM authoring tools have become easier for design and construction firms to adopt and for professionals to learn to use, so has coordination become more accessible. "A design-review tool is easier to use than a BIM authoring tool," says Matthew Jogan, AIA, an architect with New York City's H3 Hardy Collaboration Architecture, "allowing team members who may not be literate with a BIM authoring tool to engage the model data and participate in the project workflow." One significant benefit is the large reduction in field changes reported by teams using the technologies.

Structural Engineers Report Benefits of BIM
(2006 survey of 1,266 structural engineers)

Significant overall benefits:	77%
improved schedule/workflow:	59%
[illegible] production cost cuts:	36%
[illegible] ons:	29%

[illegible] structural.com)

An additional challenge addressed through collaborative design review: "Through integration software, it appears as if it's in one model, but that doesn't mean that you can go in and change the model right there," Lowe explains. "If someone recognizes that a change has to be made, you send that back to the discipline who is responsible for it. In other words, you don't have the general contractor changing the structural steel design."

With such improvements in productivity, quality, liability and overall safety, those A/E/C professionals not using BIM are faced with a question: Why not?

Even the marketplace seems to demand BIM. The U.S. General Services Administration (GSA) requires certain BIM deliverables. At a meeting hosted by the National Institute of Building Sciences last year, the GSA's Steven Smith reported that poorly coordinated A/E drawings result in field difficulties —"inefficiencies, mistakes and delays" that account for billions in waste and a negative impact on facility life-cycle.

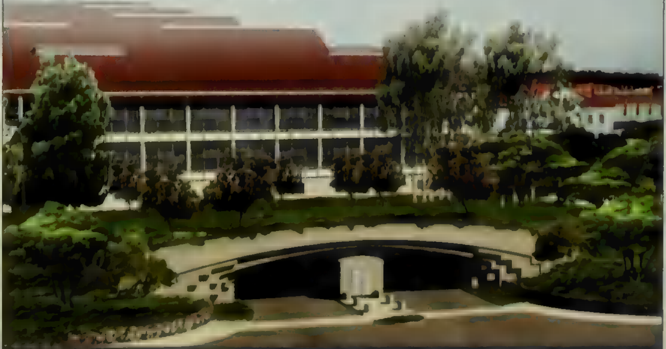
In a 2006 survey of 1,266 structural engineers, 77 percent of the respondents reported significant benefits from the use of the technology. About 60 percent listed improvements to schedule/workflow benefits, while just over a third described more efficient production within their firms. Overall project cost benefits accrued to about 30 percent of the engineers, too. The GSA's Smith noted that interoperable BIM data sharing stands to improve project delivery and ensure facility qualities that better meet occupant needs and make for "safer workplaces."

From Productivity to Safety

The rationale for using BIM, therefore, goes well beyond the ease of use of the models. Other reasons include productivity gains, project controls, rapid visualization capabilities, and downstream uses of the database built into the model, such as for facility management and operations.

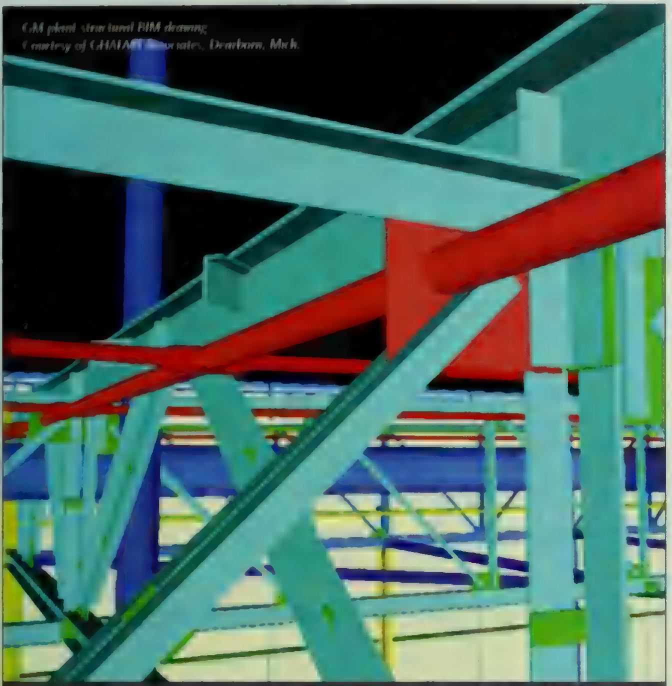
More recently, however, project teams are leveraging BIM and integrated design review to enhance the health, safety and welfare (HSW) performance of their projects. Such HSW advantages include enhanced building occupant safety. For instance, BIM can be used to analyze and compare fire-rated egress enclosures, automatic sprinkler system designs,

Courtesy of View By View, Inc., San Francisco, CA



For the Letterman Digital Arts Center in San Francisco, CA, BIM and design review were used to simulate clearances for emergency vehicles.

and alternate stair layouts. Even finely grained details, such as stair width, rail height, and door swing can be evaluated with BIM to simulate real-world emergency evacuations. Similarly, building accessibility and amenity for occupants tend to be better understood and executed, such as analyzing provisions for users with disabilities.


GM plant structural BIM drawing
Courtesy of GHAFARI Associates, Dearborn, Mich.

The ability to identify, visualize and resolve conflicts among various building systems is a significant benefit of a collaborative BIM environment.

A more commonly lauded quality of integrated BIM is its use in ensuring proper and safe building operations. For example, the proper layout of MEP and fire systems can be verified before mistakes are built in. Called variously "clash detection" or "conflict resolution," this capability proves effective in holding proper clearances and spacing between various utilities—steam pipes to electrical busway, for example.

Another emerging HSW arena exploits BIM design review to boost project sustainability, energy efficiency, and overall building performance. For instance, BIM can be used to automatically compare engineer and architect schemes, analyze energy profiles, or compare material specifications. These green-building approaches can also have a direct impact on the emotional well-being of occupants, such as by simulating interior daylighting and view corridors to determine optimal availability. Visualization of planned workspaces also allows the direct involvement of owner and occupants, bringing their input on what increases "user comfort" to the design and construction team.

...project teams are leveraging BIM and integrated design review to enhance the health, safety and welfare (HSW) performance of their projects.

"On some projects the owner has invited maintenance staff to review the model to comment on equipment accessibility and maintenance considerations," notes Robert Mauck, AIA, P.E., vice president of Advanced Technology with GHAFARI in Dearborn, Michigan.

The 2007 American Institute of Architects (AIA) convention highlighted these benefits in a session sponsored by the AIA's Technology in Architectural Practice group. Titled "BIM Best Practices, Best Results," the session covered the use of BIM in analyzing alternatives for building performance optimization, such as minimizing material waste, optimizing equipment use, and creating a safer construction site. The presentation concluded that BIM analysis tools in several categories contribute to sustainable, high-performance buildings.

Constructability and Coordination

Another place demanding safety is the construction site itself, where the coordination and completeness of the integrated BIM data helps ensure proper scheduling and staging of construction tasks. Some general contractors and construction managers (CMs) also use BIM to reduce the amount of waste on site—an important part of sustainable construction practice—as well as loose material that can be a theft target. Additional uses include facilitating movement on the site and reducing the number of workers needed: the bottom line, fewer human and material resources to complete the tasks at hand.

Less activity on the job site also contributes to a safer construction process, as well as a better liability picture, say some. "The more the team understands what's going on, the liability issues tend to be reduced," says Dan Gonzales, corporate manager of Virtual Design and Construction at Swinerton Construction. "In a paper-based, 2-D environment, everyone only understands their piece; but with 3-D, everyone is looking at the same model. And the design-review tool reads so many different models that everyone still has responsibility for their own model, so there is no change in liabilities," he says. "From that standpoint, I think design review keeps liabilities clear."

According to *The Contractor's Guide to BIM*, published by Associated General Contractors (AGC), the advantages of using BIM include: identifying collisions, such as where piping may run into structural steel; studying what will be built in a safe, simulated environment; reducing errors and corrections in the field; having more reliable expectations of field conditions; being able to incorporate more prefabricated components and assemblies; and comparing of "what if" scenarios for logistics, sequencing, hoisting and other major moves. The AGC also writes that BIM can reduce callbacks and warranty costs.

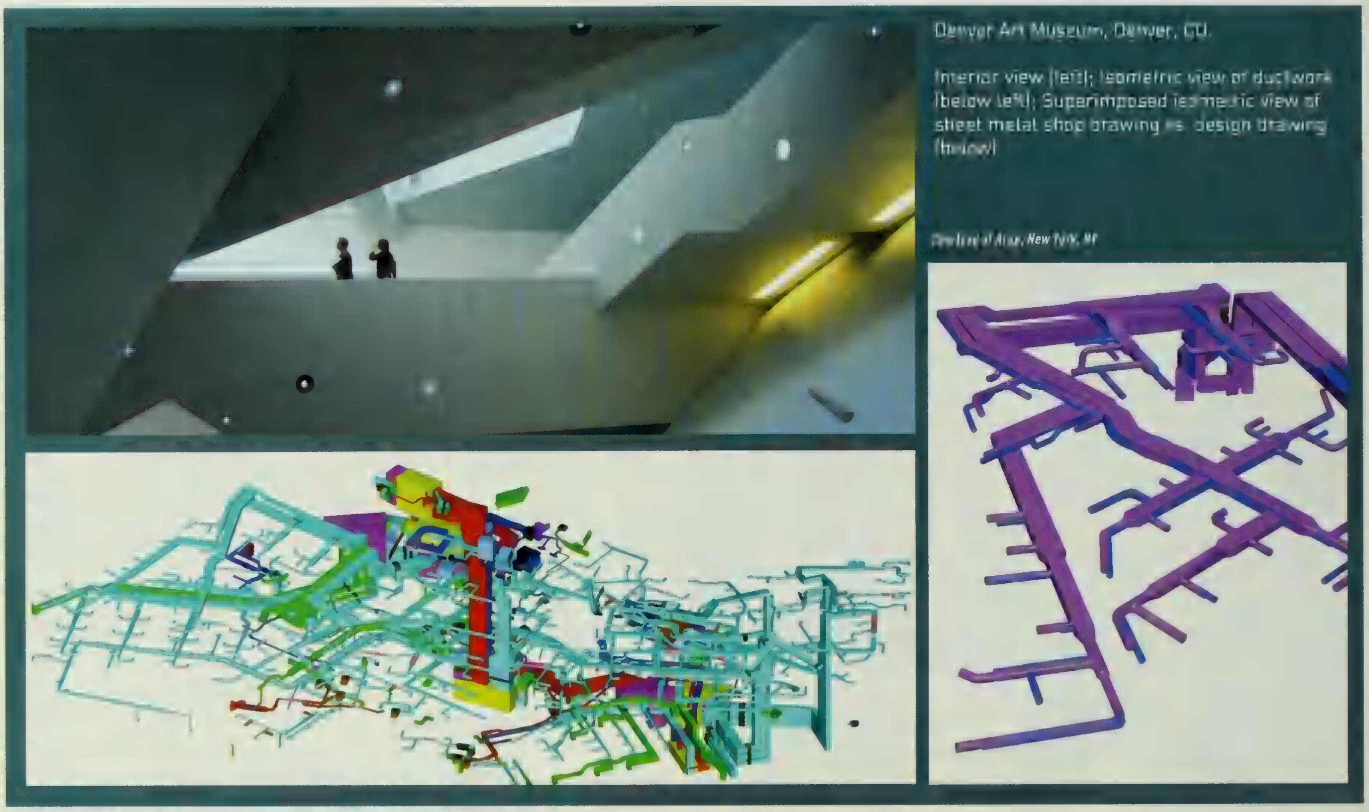
With its early design review, the BIM process essentially shifts project coordination to much earlier in cycle, says Boryslawski. "The numbers of trades working in a tight area is minimized, and some parts of MEP are assembled off site from the BIM 3-D shop models, also contributing to safety due to fewer people on site during the installation process," he explains. "And the trades have a clear understanding as to the position of all the items within the confined space."

Swinerton, for one, reports frequent uses of the BIM model in the field. "We use BIM to plan equipment placement, storage, and on-site conditions, and to tie into our sequencing to really look at how a building is going to built," says Gonzales. "For example, we use BIM to make sure lower areas are cleared away when you're placing steel."

Risk Reduction

With such significant health and safety benefits in both design and construction phases, it follows that overall project liability, as well as project team risk, can be reduced, too. Issues of design coordination, conflicts, and code compliance can be addressed during design, rather than construction. Projects should have less variability in cost and construction time, along with fewer claims.

"Architects, as well as their consultants, working with a building information model, reduce risk because the model makes the relation of design information explicit within the same virtual space," says Jogan. "The ambiguity between the architect's design intent and the 'fit' of a consultant's building system is practically eliminated."



Denver Art Museum, Denver, CO.

Interior view (left); Isometric view of ductwork (below left); Superimposed isometric view of sheet metal shop drawing vs. design drawing (below)

Courtesy of Arup, New York, NY

During the development of the project, strict rules can be applied to police the model, restricting access rights and allowing changes only by authorized project team members, according to Lachmi Khemlani, editor of *AECbytes*. When versions of the model fall out of date, they can be automatically destroyed or archived, with a precise audit trail. Responsibility for the various models can also be clearly assigned. "For instance, quantity take-offs is not something that the design team should be responsible for any more in 3-D than in 2-D, even though the model itself can generate this," Lowe explains. "Shop drawings, as well, remain on the contractor side."

In some recent cases, the BIM model has remained contractually subordinate to 2-D documents, as was the case for work on the Denver Art Museum. In the future, more design teams will rely more on electronic data so that construction pricing, scheduling and detailing can be generated without duplicating 2-D documents. One of the reasons is that BIM tools are becoming available for more construction specialties and vendors. For the Denver museum, according to *Engineering News-Record*, the model specifically designed for steel fabrication was used to procure other building systems.

Such challenges again open the door for BIM design-review and collaboration tools, says Jogan. "They enable architects and their consultants to focus on the work—the design and coordination of a building—instead of focusing on issues about the use of specific authoring tools and limitations with interoperability," he explains. "In this way, the potential to collaborate with different engineers, contractors, and subcontractors via a model-based process does not get derailed by limitations of various authoring tools to interoperate with each other. BIM is about enabling a model-based process."

Furthermore, Jogan adds, the collaboration tools are easier to use than BIM authoring tools, opening the doors to more use across the building teams. And the original design information is protected, says Lowe, even as it is accessible through the design review. All this functionality and explicit information translates into reduced risk. "When this is combined with a workflow process that coordinates and documents directly from the model, there is inherent and immediate coordination between systems within the design documentation," Jogan observes. "The risk of delivering a design intent that has unaddressed coordination issues between building systems is greatly reduced."

Healthcare Project Benefits

In certain markets driven by complexity and liability, BIM has been more quickly adopted. One of those markets is healthcare. "I don't know how you'd design and build a medical facility today without using BIM," said Douglas Fitzpatrick, P.E., LEED® AP, managing member of Fitzpatrick Engineering Group at a national roundtable on BIM. "The need for collaboration among the disciplines is tremendous."

The use of collaborative BIM signals better outcomes, say experienced project teams. "In the health industry most of the problems occur in MEP construction coordination, and about 45 percent to 55 percent of the total costs of hospital construction projects are in the MEP systems," says Boryslawski. "Having a fully design-coordinated BIM for MEP will reduce most of the risks associated with healthcare industry projects." ■

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The quiz questions below include information from this online reading.

Program title: **"Integrated BIM and Design Review for Safer, Better Buildings," (06/07, page 191).** AIA/CES Credit: This article will earn you one AIA/CES LU hour of health, safety, and welfare credit. (Valid for credit through June 2009). **Directions:** Refer to the Learning Objectives for this program. Select one answer for each question in the exam and fill in the box by the appropriate letter. A minimum score of 80% is required to earn credit. **To take this test online, go to http://construction.com/CE/**

LEARNING OBJECTIVES

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Questions

1. **With BIM design review software, any project team member can change the work in the model by other project team members.**
   ☐ **a.** True
   ☐ **b.** False

2. **The use of BIM for "clash detection" or conflict resolution means that**
   ☐ **a.** users can determine where building components interfere with each other.
   ☐ **b.** users can reduce the number of change orders.
   ☐ **c.** arguments between engineers, architects and contractors are identified and resolved.
   ☐ **d.** 3-D elements of building models are automatically reconciled.

3. **Which is NOT a health, safety [illegible] welfare benefit of BIM and design review at the construction site?**
   ☐ **a.** Reducing errors and corrections in the field
   ☐ **b.** Comparing "what-if" scenarios for logistics, sequencing and hoisting
   ☐ **c.** Automatically sampling air quality at the job site
   ☐ **d.** Incorporating more prefabricated construction components

4. **For healthcare facilities, BIM and design review have provided:**
   ☐ **a.** life safety benefits.
   ☐ **b.** coordinated fire-protection and plumbing information.
   ☐ **c.** savings on installed costs.
   ☐ **d.** All of the above

5. **Recent uses of BIM technology include:**
   ☐ **a.** identifying coordination issues to increase project risk and liability.
   ☐ **b.** preventing the movement of equipment within healthcare facilities.
   ☐ **c.** assessing a building's performance for ADA, egress and daylighting.
   ☐ **d.** wireless building permit applications.

6. **Research labs designed without BIM may have heating energy requirements that are how many times higher than those for buildings designed with BIM?**
   ☐ **a.** 100 times
   ☐ **b.** 2-4 times
   ☐ **c.** 17 times
   ☐ **d.** 0 times

7. **Which is NOT a documented benefit of using BIM for sustainable design?**
   ☐ **a.** Analysis of commuting costs for the occupants
   ☐ **b.** Study of daylight penetrations and views
   ☐ **c.** Modeling of cooling and heating loads
   ☐ **d.** Accounting of recyclable content in building products used

8. **How can BIM assist in making building operations safer and more efficient?**
   ☐ **a.** By providing building component warranty and replacement information.
   ☐ **b.** By integrating maintenance schedules and MEP systems information.
   ☐ **c.** By providing as-built drawings to facilities managers and safety officials.
   ☐ **d.** All of the above.

9. **For the Letterman Digital Arts Center, integrated design-review tools ______.**
   ☐ **a.** coordinated the installation of graphics workstations
   ☐ **b.** increased the project cost
   ☐ **c.** identified hundreds of design and construction discrepancies
   ☐ **d.** contributed to a utility rebate

10. **How did BIM improve the scheduling of the project at the Flint V6 plant?**
   ☐ **a.** Reduced time needed for steel fabrication and delivery.
   ☐ **b.** Made it a LEED Platinum design.
   ☐ **c.** Allowed project to proceed without structural drawings.
   ☐ **d.** Maximized use of prefabricated components.

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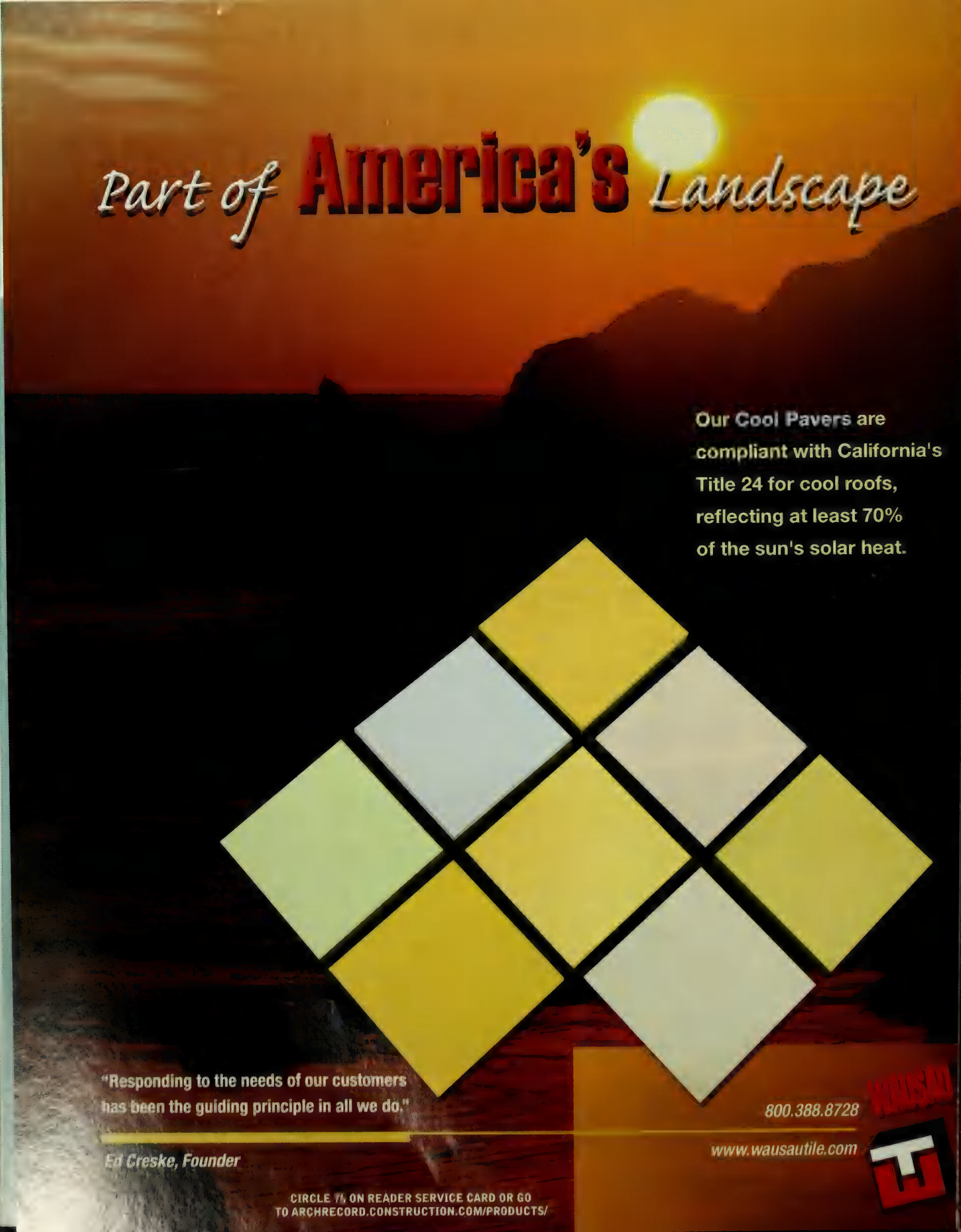

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Interiors

Within historic buildings, modern treasures

BRIEFS

The interior architects and designers who traveled to New York for the International Contemporary Furniture Fair and corresponding New York Design Week events had more than fresh furnishings and materials to sample. A series of new showrooms framed the wares.

While the openings ranged from the Manhattan satellite of the Brooklyn design shop **Matter** in NoLita to the Flatiron District's **Gallery R'Pure** (which features furniture by a group of French designers), most of the action was centered in SoHo, where the historic cast-iron buildings have been molded into exhibitions of commerce.

B&B Italia opened its second New York showroom in the neighborhood. The furniture maker tapped architect Gabellini Sheppard Associates to oversee the 5,500-square-foot project, which the company calls a "laboratory" for the modern-design consumer. This lab will definitely percolate, as it rotates seasonal collections.

The nearby **Luceplan** showroom features the Italian lighting company's products, as well as native talent. The 2,300-square-foot store was designed by Alessandro Scandurra, who devised a series of shadow boxes and a freestanding, cubelike room so visitors can gain a better sense of the luminaires in enclosed spaces.

Other SoHo stores got spruced up. **Bisazza**, for example, passed the torch from Fabio Novembre, who designed the showroom in 2003, to Carlo Dal Bianco, who designed the recently reopened space that spotlights a 24-karat-gold-leaf tile fireplace. Another well-known brand undertaking a makeover is the renowned design store Moss. The original storefront has been turned over to installations for the Italian furniture manufacturer Moroso and the family-run American textile producer Maharam. **Moroso at Moss** and **Maharam at Moss** are first-ever retail outlets for both companies. To welcome them, longtime Moroso collaborator Patricia Urquiola redesigned the 3,800-square-foot space, which is the first U.S. interior for the popular Milan-based architect and designer. Moss's trademark array of jaw-dropping products, meanwhile, has been moved to the store's former gallery space next door. *D.S.*

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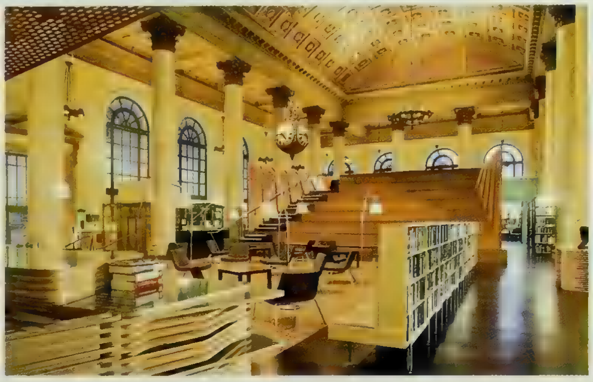

After decades of fleeing to the suburbs, Americans are now reversing the population tide in favor of cities, and there's no more apparent sign of this trend than the restoration and adaptive-reuse projects that have transformed whole neighborhoods. At first blush, reclaiming cities' historic fabric doesn't seem to leave room for contemporary architecture. But the practice actually provides designers with opportunities to accommodate new functions, materials, and technologies. Combining a respect for context with a desire for an authentically modern intervention can yield new forms and propel innovation.

The architects featured here have proved themselves well equipped for these tasks. At the Rhode Island School of Design, Office dA has transformed an Italian Renaissance–style banking hall into a visual arts library. The project is multifaceted, the architects having inserted new volumes that, besides containing the many tools that students demand, feature complex geometric shapes. These interventions make the most of medium-density fiberboard without detracting from the luster of the hall's coffered ceilings or suspended brass clock.

Similarly, Tom Kundig's conversion of a Seattle warehouse into a painting studio refuses to parrot the past or intervene with a heavy hand. Using familiar drywall, the architect has fabricated a system of pivoting partitions that open, close, or slide out of sight according to the artist's needs. A muscular staircase, plus a surprising kitchen table, appear as if they were fabricated on-site a century ago.

Even in Europe, where sprawl has begun to invade, old urban cores are canvases for contemporary design. The courtyard apartment building that houses the Julie Sohn boutique in Barcelona looks like any of its neighbors, but CCT Arquitectos' breathtaking renovation of the ground floor slipped a pair of Manolo Blahniks on the tenement. The interior differentiates between old and new, literally maintaining an arm's length between the building's bones and its evocatively shaped ceiling and sculptural display fixtures. Indeed, a project like this could potentially seduce suburbanites back into the city. *David Sokol*

Office dA inserts a new sensibility within a historic shell to create the **Fleet Library at RISD**

By Clifford A. Pearson

How do you turn a Renaissance Revival banking hall from 1917 into a 21st-century visual-arts library and do it on a tight budget? That was the challenge facing Office dA, the Boston-based architecture firm headed by Nader Tehrani and Monica Ponce de Leon, when it started work on the 55,000-square-foot Fleet Library at the Rhode Island School of Design in Providence.

Designed by York & Sawyer and listed on the National Register of Historic Places, the old building features an interior space 180 feet long and 114 feet wide and topped by an elaborately coffered, barrel-vaulted ceiling. The banking hall might easily have served as a magnificent reading room, if only the school had the luxury of devoting all of it to one use. But the library's program called for 90,000 books in open stacks, seating for 250 people, 400 periodical titles available for browsing, and a variety of different study, administrative, and multimedia support spaces.

Even with a balcony running along one side of the banking hall and a second floor wrapping around the vaulted ceiling, there wasn't enough space for all of the programmatic elements. "We had to make the height of the space work for us," says Tehrani, who studied at RISD and, like his partner, has taught there. Despite initial resistance from the client's design-review committee to interrupting the hall's impressive volume, Office dA developed a "double-decker" strategy that inserted a two-level study pavilion and a single-level circulation center within the grand space.

"We wanted to maintain the scale of the banking hall," states Ponce de Leon, "so we decided to install two objects as if they were informal elements in an ancient ruin." The old bank building was actually in good condition—hardly a ruin—but the architects imagined their project as adding a new layer to a historic place, much like the multiple strata we see today at the Roman Forum. Rather than obscuring the past, the new elements add a modern resonance. Office dA also wanted its work to have a temporary quality that would contrast with the more permanent nature of the Italianate setting.

To respect the old building, the architects developed three different strategies for the elements added inside it. The largest pieces—the study pavilion and the circulation center—are designed as insertions, milled by computer-numerical-controlled (CNC) machinery off-site, and then assembled quickly inside the banking hall. Their prefabricated nature not only sets them apart from their historic context but implies they could be dismantled and carted away if needs change in the future. A second strategy covers the few places where the new actually touches the

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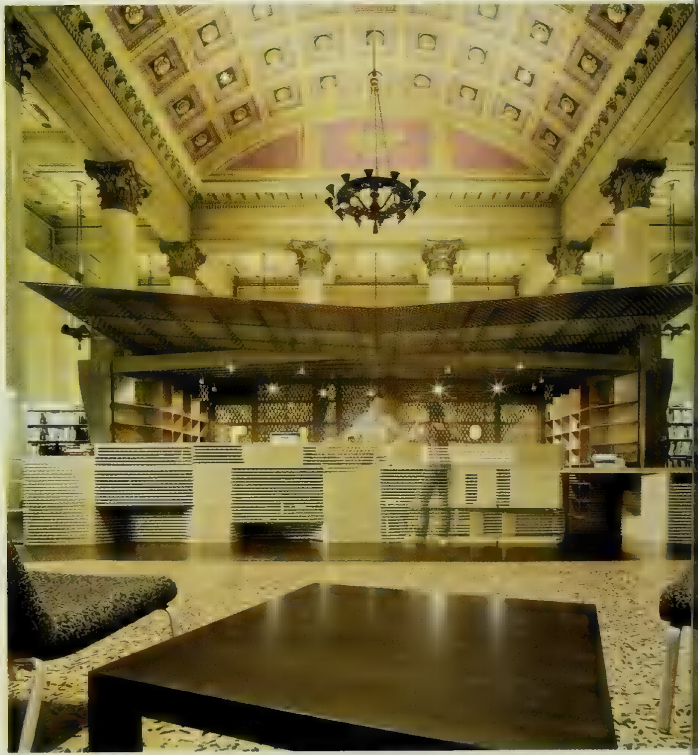
Project: *Fleet Library at the Rhode Island School of Design, Providence*

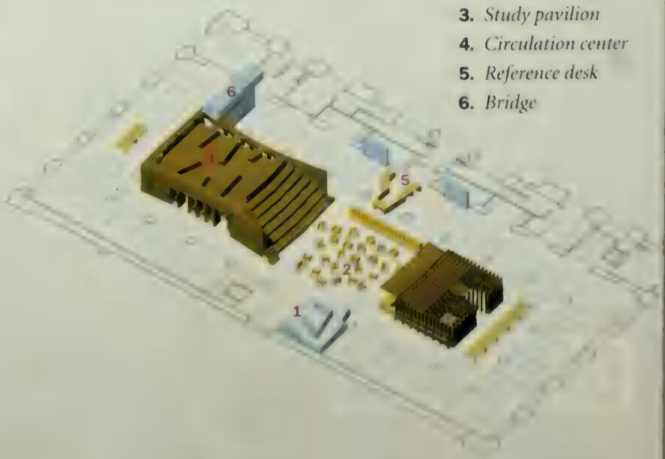
Architect: *Office dA—Monica Ponce de Leon, Nader Tehrani, principals; [illegible] Gallagher, project architect; [illegible] Kang, project manager; Lisa [illegible] Baccei, Kurt Evans, Anna Goodman, Ahmad Reza Schricker, Ghazal Abassy, project team*

Engineers: *Simpson Gumpertz & Heger (structural); Harry Grodsky & Co. (mechanical/HVAC)*

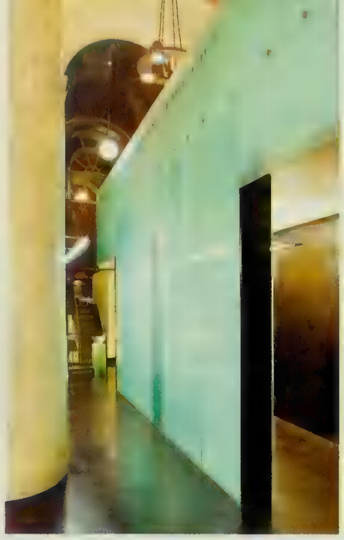
General contractor: *Shawmut Design and Construction*



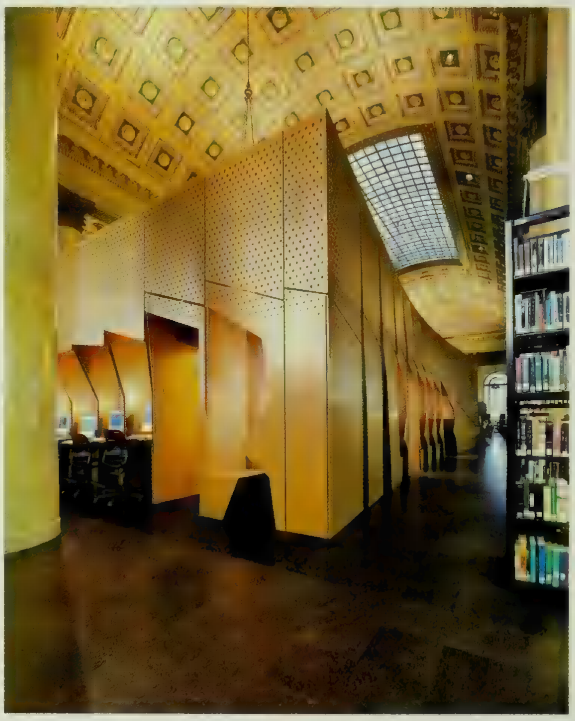
Although made of CNC-milled MDF board, the circulation center (above) and study center (foreground of photo, opposite) reinforce the axiality of the old banking hall. The architects hid sprinklers in the coffered ceiling's rosettes and added new lighting to better illuminate the barrel vault.

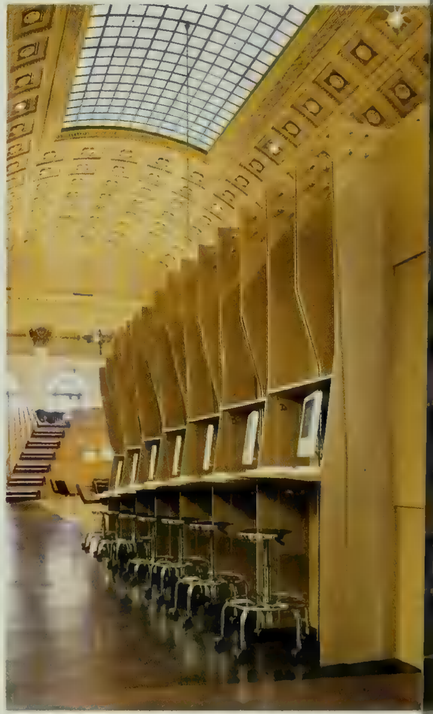


1. *ADA ramp*
2. *Lounge*
3. *Study pavilion*
4. *Circulation center*
5. *Reference desk*
6. *Bridge*



A glass bridge (left) connects the study pavilion to an existing balcony. Carrels line three sides of the study center (below). Workstation heights in the circulation center vary from one unit to another (below right).



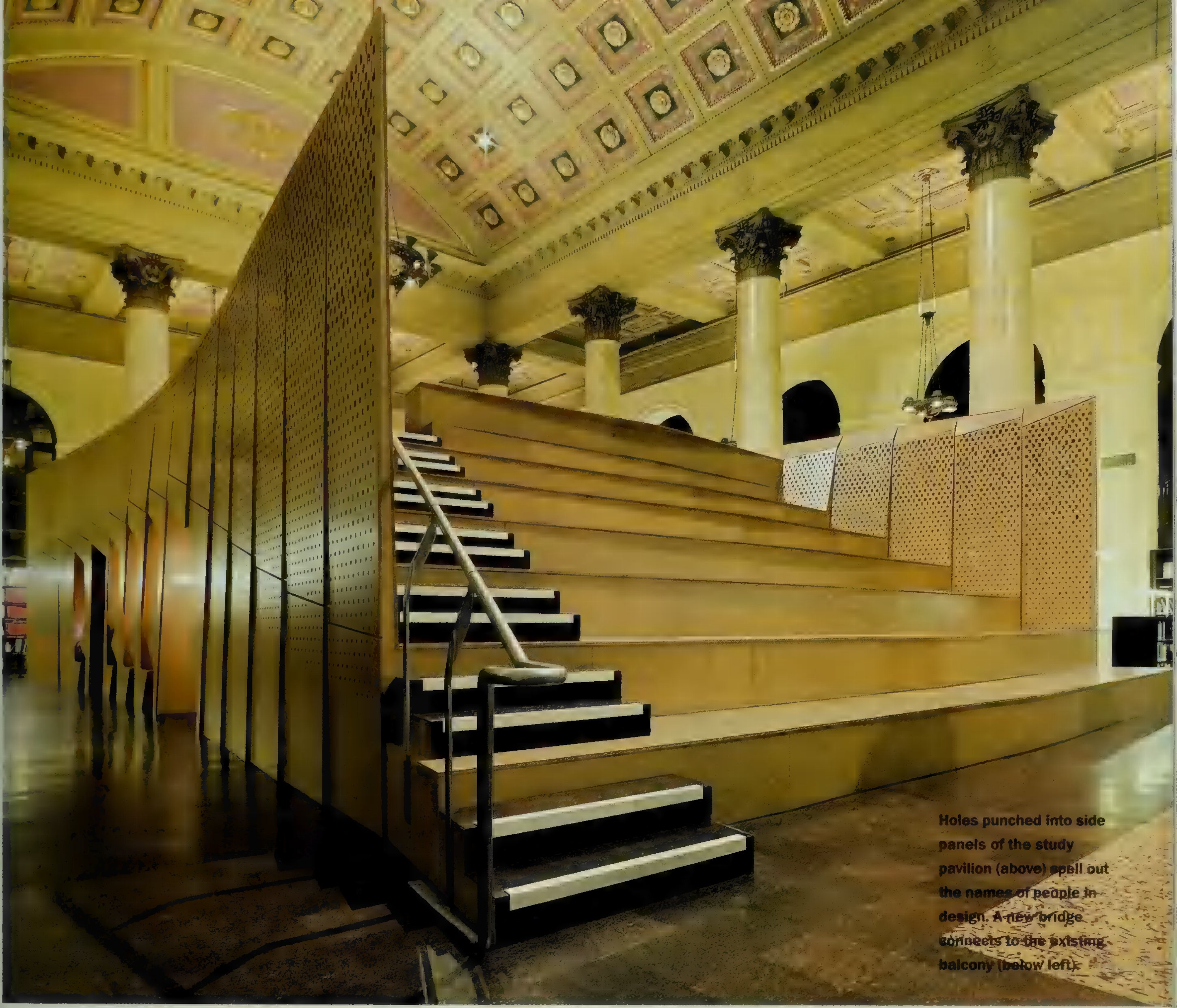


old—such as a small bridgelike structure that connects the upper level of the study pavilion to the old balcony and a handicap-access ramp at the library entrance. Here, Tehrani and Ponce de Leon either made their work as light as possible (for example, using translucent glass for the bridge) or treated it as a continuation of the existing floor plane (extruding the ADA ramp so it zigzags past a set of display cases). The third strategy accommodates the smallest elements in the project—such as the reference desk and pieces for various study areas—and treats them as furnishings that can be moved around.

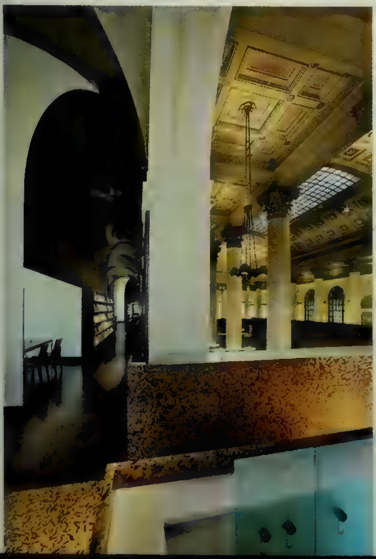
The library, which had a construction budget of only $8.8 million (about $160 per square foot) and took just 9 months to build, sits downstairs from new dormitories that Office dA also created (on an even tighter budget) from what had once been office space in the bank building. With hundreds of new dorm rooms just an elevator ride away, the architects treated the library as not just an academic resource but a communal living room for the students housed upstairs. So at the center of the old banking hall, on axis with the library entrance, a casual lounge beckons with comfortable chairs and floor lamps.

Tehrani and Ponce de Leon are famous for exploring the nature of materials. In this project, they cut and assembled medium-density fiberboard (MDF) in a variety of ways, using it to both highlight and subvert the material's flatness. For the study pavilion, they wrapped a steel frame with large sheets of MDF, canting the planes in and out to create a rippling, faceted skin reminiscent of scales on a fish. To lighten the effect, the architects punched holes in the MDF that start as small amoebalike openings, then turn into letters as they get larger. Facing the lounge, the study pavilion steps back so students can climb to an upper-level reading deck. Underneath this deck, Office dA tucked a set of group-study and service spaces while carving out a series of study carrels along two sides. Cut from MDF panels, the individual carrels give the material a surprising sense of depth.

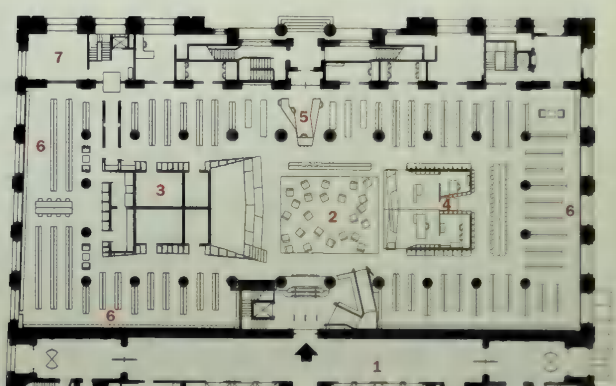
For the circulation center, the architects treated MDF in a different way, bolting layers of it together to form structural members such as columns and beams. Instead of a skin, it works here as a skeleton. "We like to take an element or material and radicalize it," says Tehrani, explaining how his firm used MDF in unusual ways. "It's a kind of minimalism," he adds, in which one thing can become many different things. Office dA exploited CNC milling and prefabrication techniques to create variety—as in rows of workstations where each counter is a few inches higher than the one right before it. "By using new technologies, we've been able to bring back a level of craft that had mostly disappeared," explains Ponce de Leon. ■

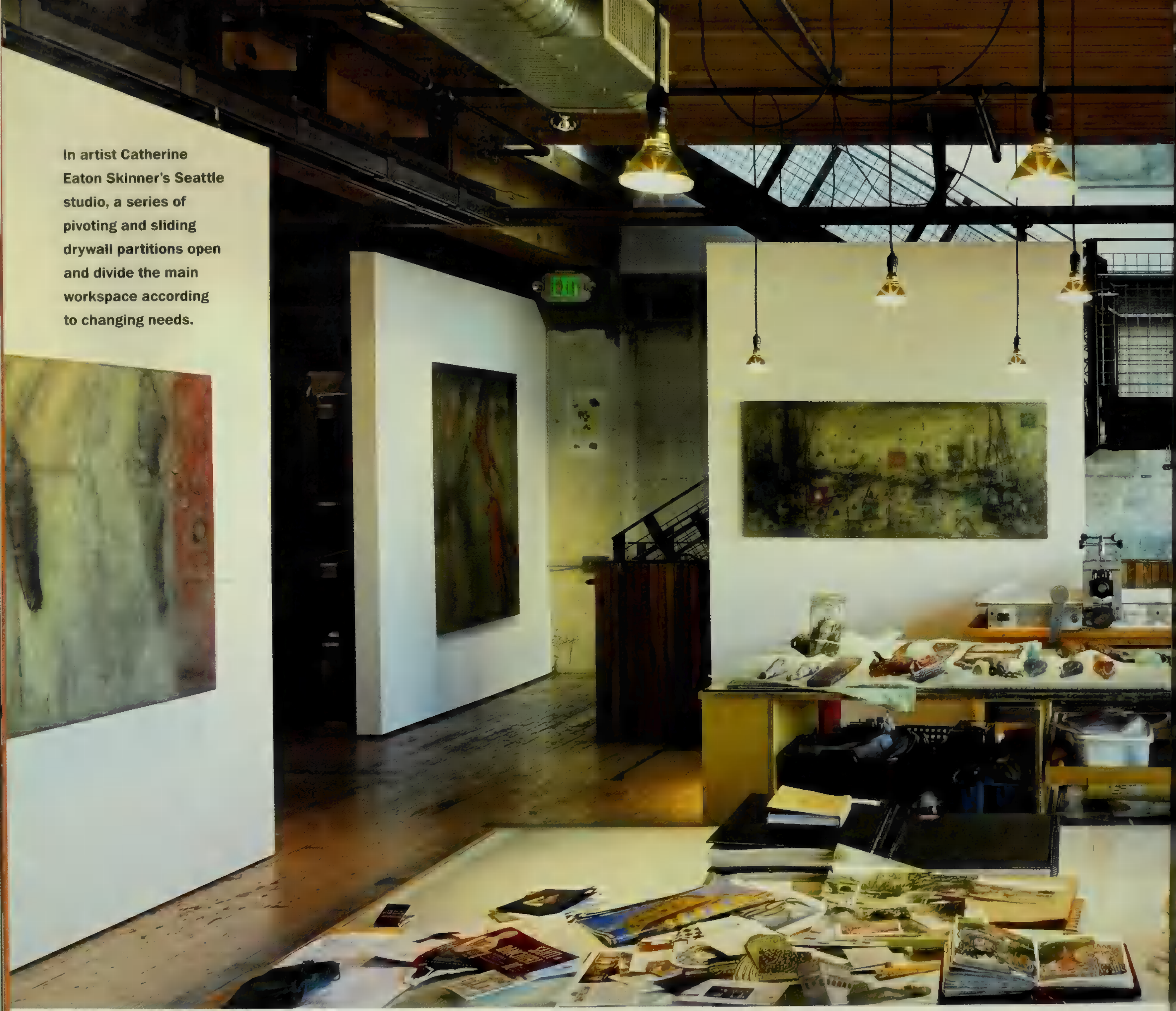


Holes punched into side panels of the study pavilion (above) spell out the names of people in design. A new bridge connects to the existing balcony (below left).

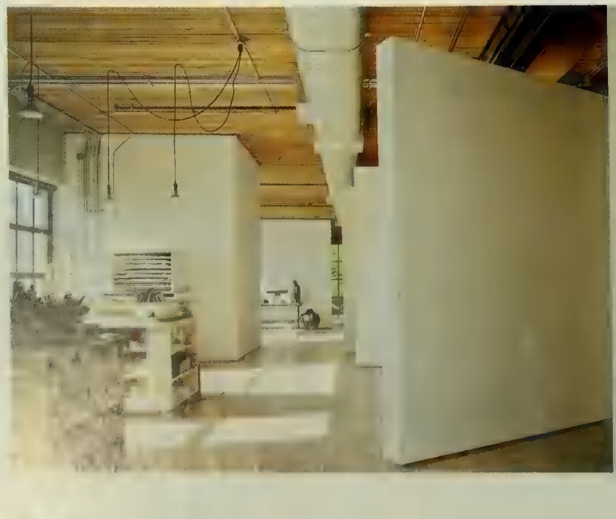


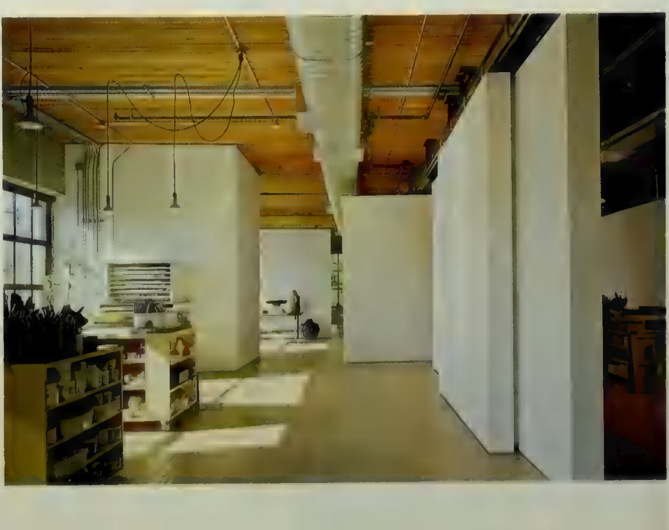
1. *Elevators to dorms*
2. *Lounge*
3. *Study pavilion*
4. *Circulation center*
5. *Reference desk*
6. *Stacks*
7. *Classroom*

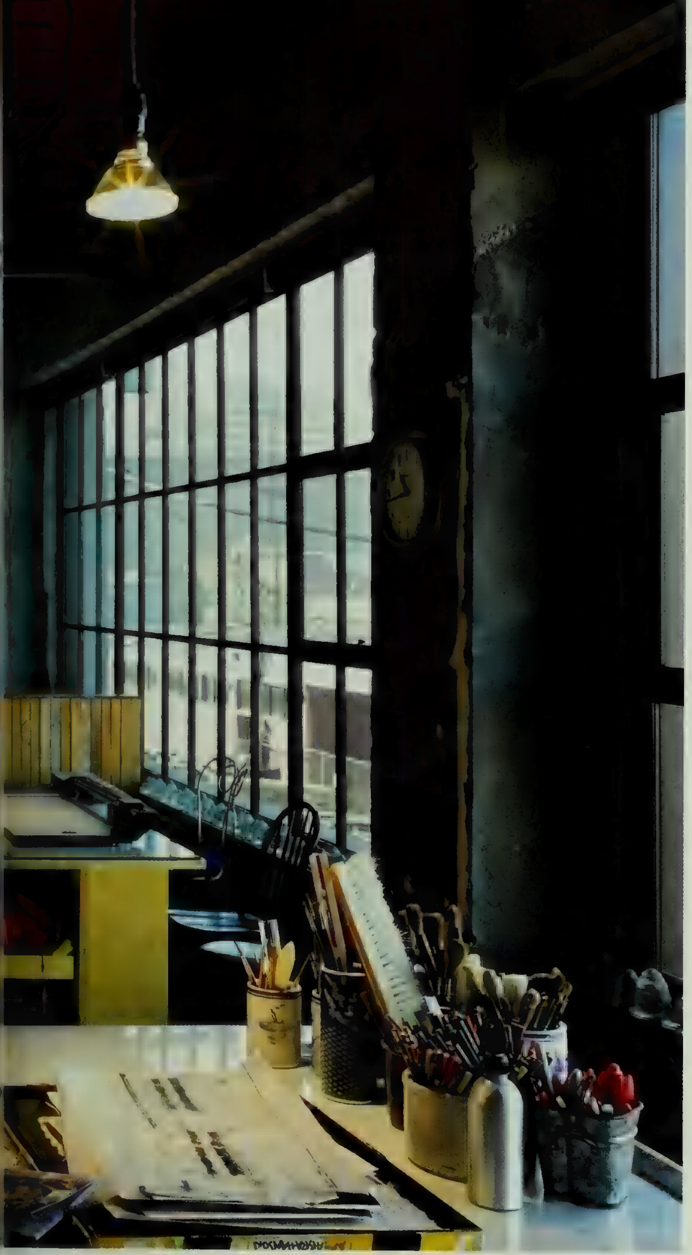


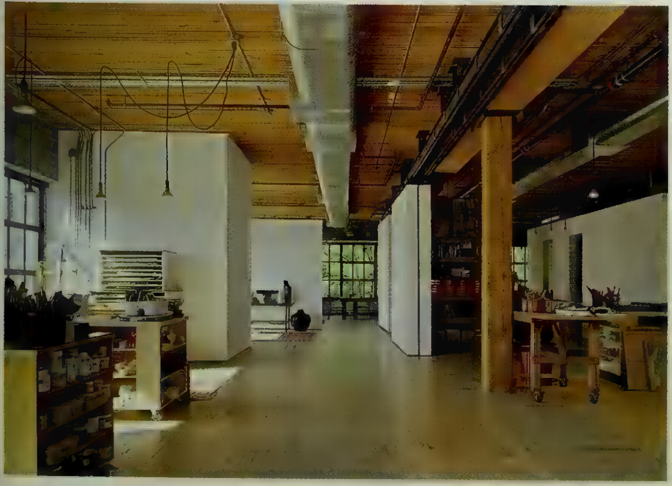


In artist Catherine Eaton Skinner's Seattle studio, a series of pivoting and sliding drywall partitions open and divide the main workspace according to changing needs.

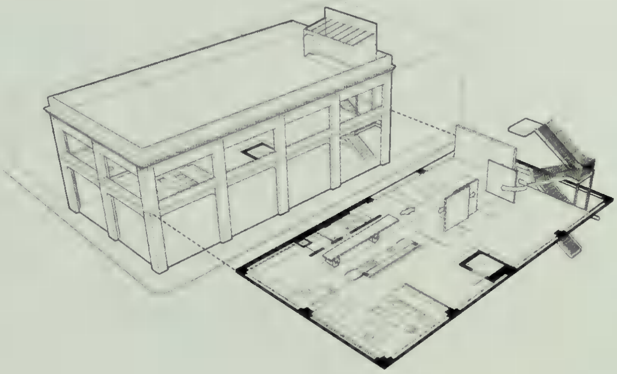








For **Skinner Studio,** Tom Kundig adapts a Seattle warehouse into flex space



By Nate Lippens

The gray skies of Seattle settle on the moody, chalklike paintings of renowned artist Catherine Eaton Skinner in her second-floor studio overlooking the city's Capitol Hill neighborhood. The studio is discreetly tucked into a vast former warehouse, with big northwest-facing apertures framing clouds above and neighborhood bustle below, and the building's 100-year-old Arensberg Sons sign marching across the facade beneath her window. Although this soaring space alludes to an earlier industrial function, it also features the hallmarks of its designer, Tom Kundig, FAIA, of Olson Sundberg Kundig Allen Architects, whose devotion to detail, integration of reclaimed materials, and affinity for adaptive reuse converge here.

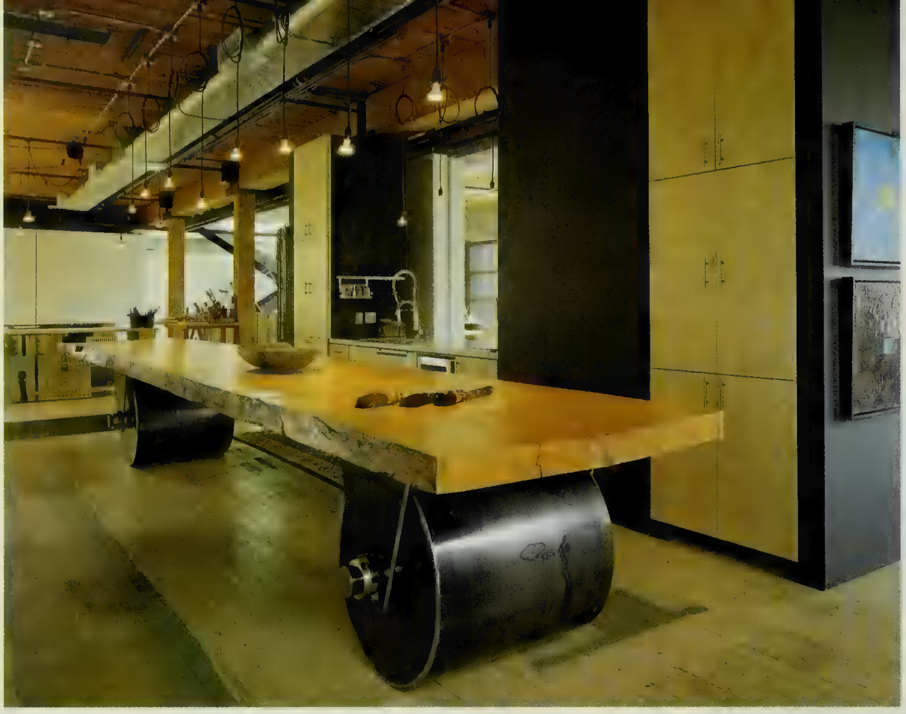
Kundig, who recently was awarded an Academy Award in Architecture from the American Academy of Arts and Letters, sees his work as collaborative, giving physical form to the ideas of his clients. Of Skinner's practice, he says, "She had a vision for her studio that I wanted to make real."

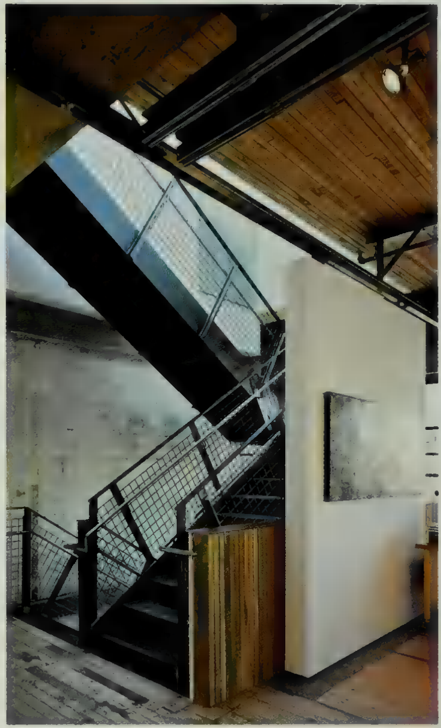
That vision focused on accommodating multiple uses in a space that changes depending on the need. In response, Kundig divided the 3,750-square-foot studio into two bays by mounting 9-by-9-foot drywall panels that pivot and slide on a steel track. The track runs adjacent to a large, central

Nate Lippens is an art critic for the Seattle Post-Intelligencer, *and the 2006 recipient of the Hopgood Prize for fiction.*

Project: *Skinner Studio, Seattle*
Architect: *Olson Sundberg Kundig Allen Architects—Tom Kundig, FAIA, principal designer; Kenny Wilson, Dan Wilson, project managers*
General contractor: *Riehl Construction*

Sources
Windows: *A&S Steel Windows*
Skylights: *U.S. Aluminum*
Metal doors: *Site Welding Services*
Wood doors: *Weyerhauser*
Ambient lighting: *Lightolier*
Plumbing: *Chicago Fixtures*





A reclaimed wood slab on steamroller wheels serves as a massive kitchen table (above). Kundig inserted a new staircase to provide access to the second-floor studio and rooftop (right). The partitions can be used to display artwork (left).

wood beam, which suggested a natural compartmentalization. Now Skinner can halve the room to exhibit works, or block out daylight to maintain a particular range of light intensity while executing new projects.

The flexibility with which Kundig imbues his designs often involves mobility, specifically partitions that slide or rotate. "A lot of clients ask, 'Do we get one of those moving thingies?'" Kundig says. "But it's not something that I want to become a gimmick. It has to work in the space and make sense in the context of the design." This is especially useful for Skinner, who is also an active art philanthropist and opens her studio to various organizations to hold events and retreats. "The partitions allow us to change the room for whatever is happening here," she says. "They can be moved, and it changes the entire space." For fund-raisers, Skinner has opened the space up to accommodate larger crowds; and for conferences, she has divided the room to create bays for separate meetings.

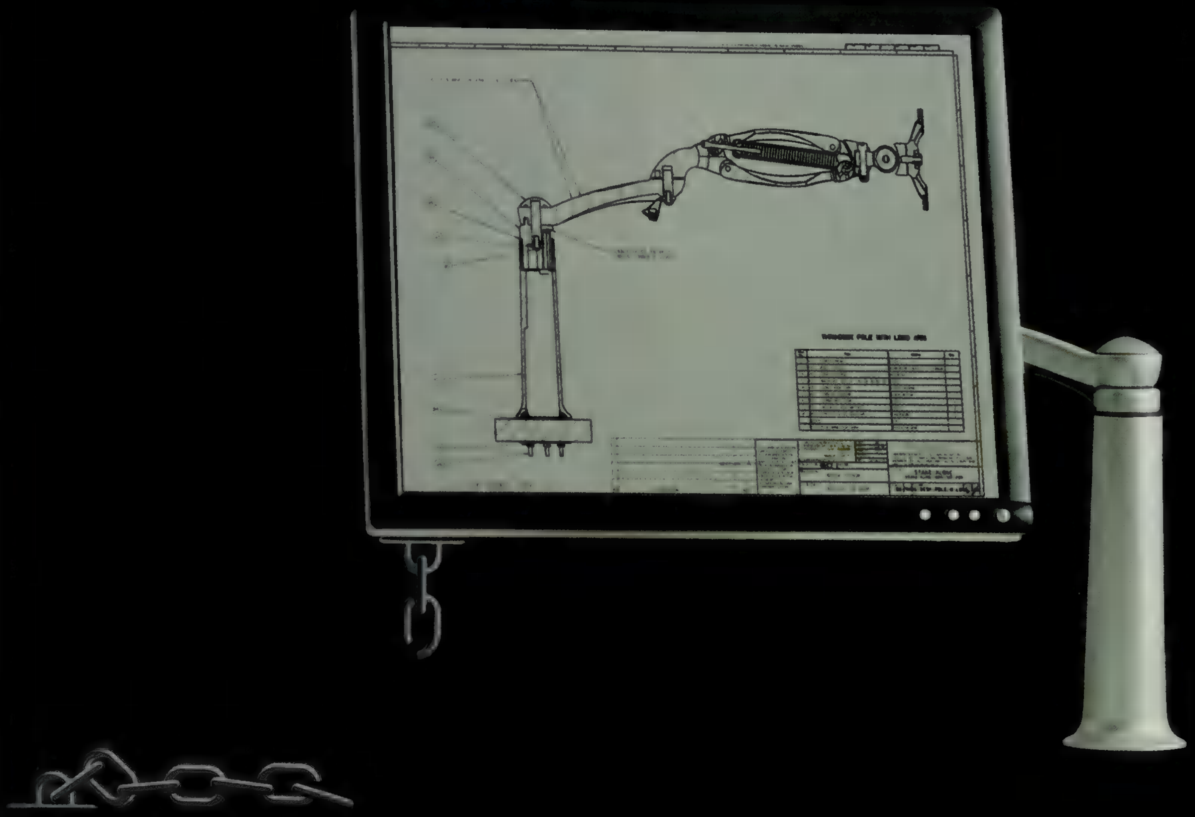
A "working wall" constructed of gypsum board runs the length of the east wall in the main studio space, and then pulls away from that brick surface to accommodate a utility room and bathroom. Nine-by-nine-foot sliding gypsum-board partitions at the south end create a storage area for art supplies and archived paintings.

Kundig's pragmatic approach to Skinner's program shaped the lighting plan, too. Simple conical downlights plug into ceiling outlets and [illegible] their own electrical cords, which loosely dangle from above. The informal design allows Skinner to move the luminaires simply by reswagging the cords. "I hope she makes changes over time as she sees fit," Kundig muses, adding that throughout his career he has encouraged clients to view his designs not as museum pieces, but as daily tools that must be altered, expanded, or tweaked according to changing needs.

Showing a sensitivity for past as well as future uses, Kundig took care to retain old elements that were unfinished or slightly imperfect. The floors were cleaned rather than resurfaced, and the concrete, which had developed a scuffed patina, was left untouched. These details are freshly illuminated thanks to a skylight inserted above a new steel staircase, which connects the street entrance to the studio and up to a small roof deck.

Other interior elements intimate that they have always been there. The kitchen sits in the studio's center, for example, and features a 12-foot-long table that Kundig designed with steamroller wheels and a reclaimed slab of wood found by Skinner. Besides contributing to the impression that the studio has been less designed than resurrected, the table divides the room in half—but can be moved into one of the bays, as required.

"It's important to have a space that's about creative life but also can include business and even living space if Catherine ever chose that," Kundig says of the studio's deft balance of organization and organic freedom. Indeed, to lead a seamless artistic life requires a studio that is fluid. Skinner explains, "It feels grounded, but it's still spontaneous." ■



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FINDING BETTER WAYS

CCT Arquitectos transforms an ordinary Barcelona interior into the fashion-forward **Julie Sohn boutique**

By David Sokol

Fashion-loving visitors to Barcelona flock to two destinations. Many go to the grand thoroughfare Passeig de Gràcia to browse the outposts of international fashion houses. But more adventurous trendsetters navigate through the cobblestone ways of the El Born neighborhood, whose narrow medieval streets are dotted with the storefronts of native designers little known outside of Catalan circles. Here local talents sell avant-garde duds in their shops—and sew them in the back rooms.

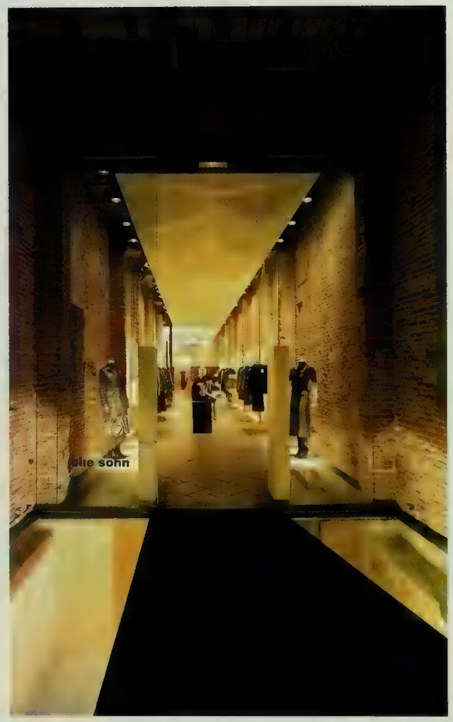
The Korean-born, Barcelona-based fashion designer Julie Sohn falls somewhere between these two worlds. Her simply adorned outfits possess a haute-couture elegance reminiscent of Max Mara, but are as wearable as a T-shirt ripped from the racks in El Born. Fittingly, her new showroom is located several blocks away from the Gràcia's brand names. And its design by CCT Arquitectos, which sets a sculptural dropped ceiling inside a raw historic interior, combines elegance with edginess.

Sohn, who is married to CCT principal Conrado Carrasco, helped launch the architecture firm in 1997. Carrasco and his partner Carlos Tejada's inaugural project was Sohn's first boutique, completed the following year. Carrasco says this latest effort is "totally different": "The first one was a very conceptual shop, Minimalist and Brutalist at the same time. This new shop has the image of a container." Sohn says she had nothing to do with the change of ambience, adding, "I just told them that I didn't want white walls and just a stretch of shelves and rails and nothing else."

The architects chose the ground-floor commercial space of an early 1900s apartment building to renovate for the showroom, a decision they attribute to the good rent and the 3,760 square feet necessary to meet Sohn's requirements. While Tejada calls the building typical for the Eixample, one of Barcelona's century-old expansion neighborhoods, CCT crafted the familiar formula to captivating effect.

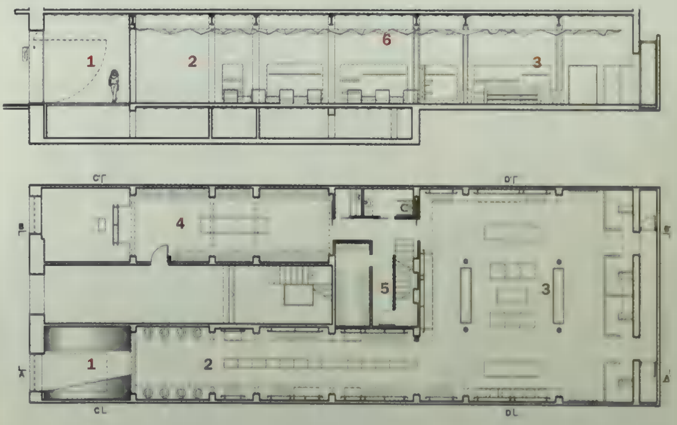
The store flows around a central multifamily entry. While one arm of this U-shaped space terminates in a shop window, the other serves as the store entrance. Here, customers are introduced to CCT's container concept, in which the architects rehabilitated the brick walls, barrel-vaulted ceiling, and concrete floors, and pulled their interventions away from the historic frame. In the case of the entrance, a steel-mesh gangplank traverses a 5-foot-tall basement, flanked by glass sheets onto which a water system releases a constant drip. The shimmering surroundings promise to transport the shopper from urban grit to fashion wonderland, and act as a light monitor for the cramped basement; the display window opposite the entry also rises as a double-height volume in order to draw daylight into the subterranean stock room.

Once inside, visitors enjoy a catwalk experience. Rather than hide the old bones it had salvaged, CCT mounted backlit, white-lacquered



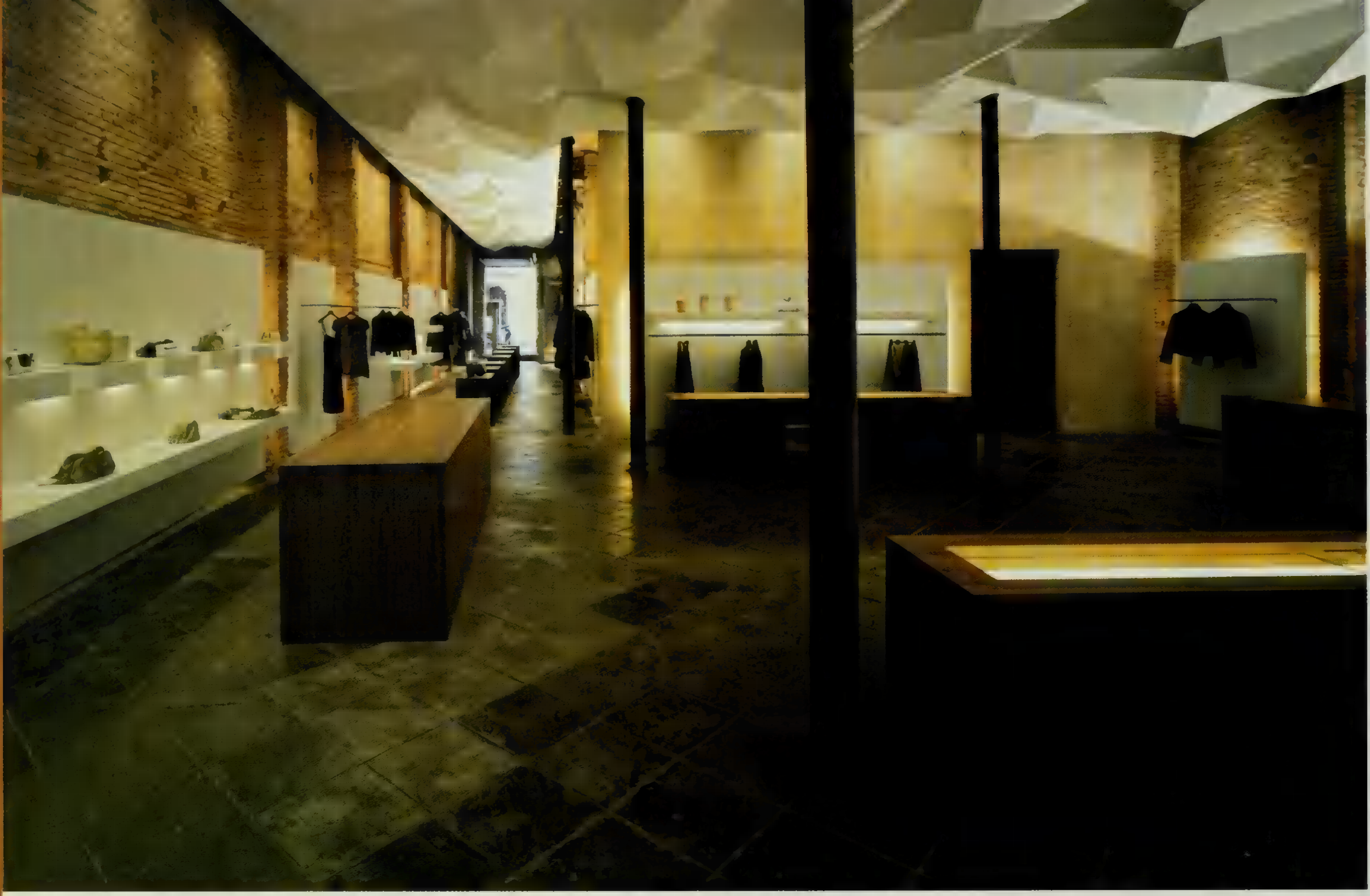
Approaching the boutique's front entrance requires crossing a gangway surrounded by planes of water (right). Once inside, pools of light illuminate the merchandise on custom wall-mounted fixtures and tables.

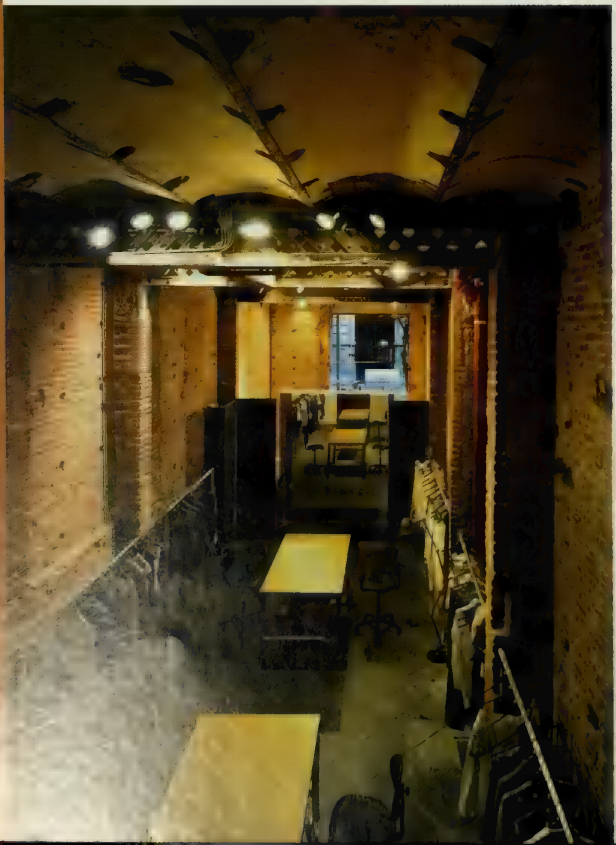
1. *Gangplank entry*
2. *Entry corridor*
3. *Agora*
4. *Staff kitchen*
5. *Stair to mezzanine studio*
6. *Draped ceiling*



Project: *Julie Sohn boutique, Barcelona*
Architect: *CCT Arquitectos—Conrado Carrasco, Carlos Tejada, principals in charge*
General contractor: *D'Pac Construcciones*

David Sokol is a New York–based freelance writer and a contributing editor at Surface. *He has also written for* Metropolis, Interior Design, Frame, *and* Azure.



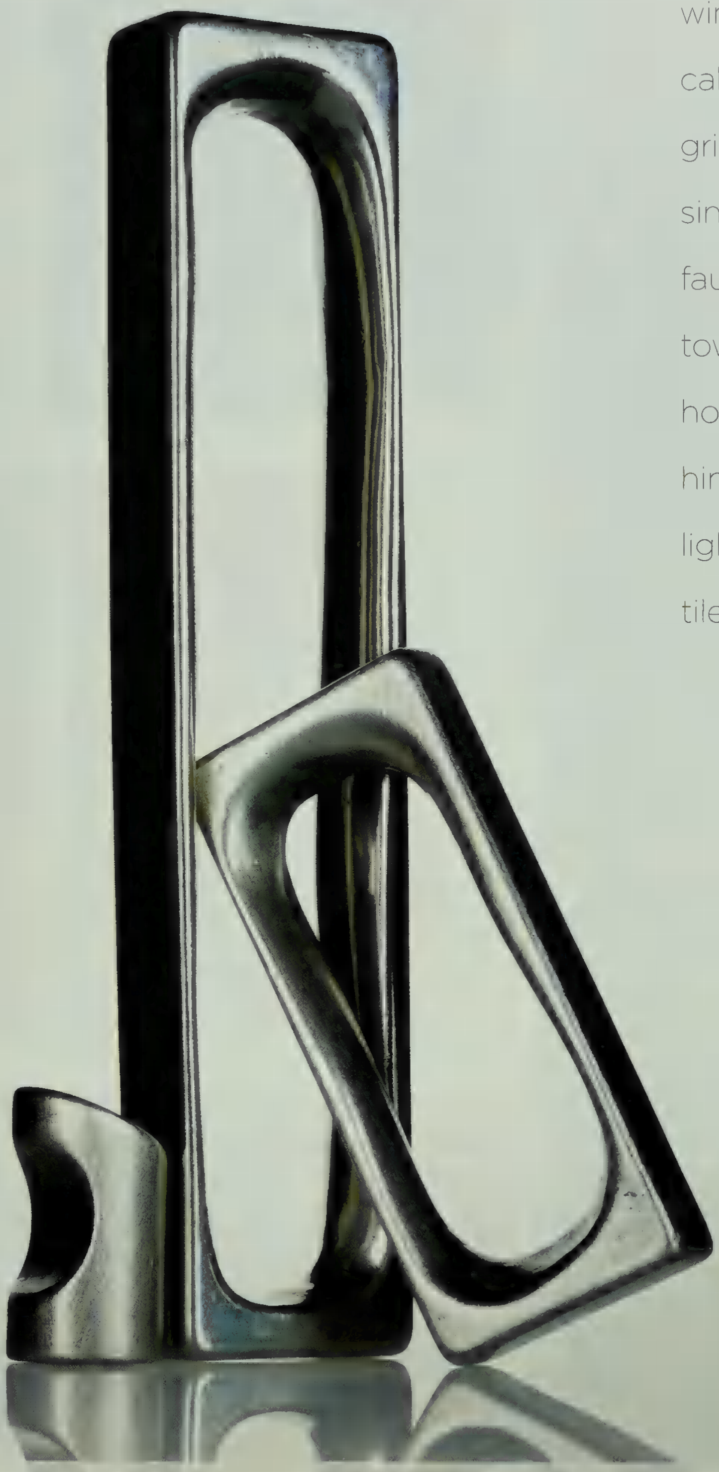


The shopping experience culminates in the "agora," where the pyramidal dropped ceiling hovers over the room (above). Original barrel vaults remain exposed in the service zone (left), which parallels the entry corridor.

volumes to the structural brick wall to serve as hanger and shelving units. The architects liken these display elements to giant picture frames, which nip the corridor's waistline and gently push the visitor into the space. To draw one's eye down the corridor, CCT divided it in two by snaking a long, folded Cor-Ten steel display table down the center.

The display table parallels a new dropped ceiling, a series of rhomboid and trapezoidal forms fabricated in painted wood that the architects compare to "a great starched cloth." Besides hiding mechanical systems, this element also leads shoppers into the heart of the store, a square "agora" where salespeople engage clients in conversation. Display units are mounted along the agora's walls, while walnut and Cor-Ten tables and vitrines sit just within the outline of the ceiling. The arrangement again directs traffic, moving garment buyers toward the perimeter, and accessory and shoe mavens into the ring of display tables.

The circulation is so well prescribed that shoppers may not notice a Cor-Ten door in the agora. Behind it lies the second arm of the U, where the original ceiling remains uncovered and crowded rolling racks replace the wall-mounted units. Sohn says she creates clothes for her own closet, and in this back-of-house space, one grasps the source of her inspiration as well as CCT's. ■



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grips

sinks

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hinges

lighting

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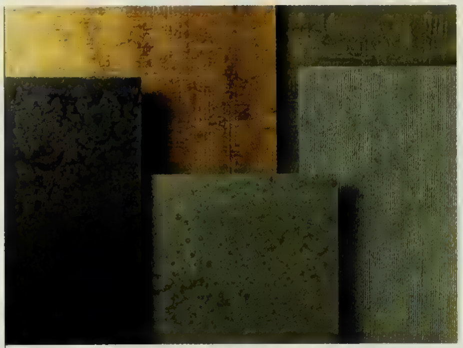
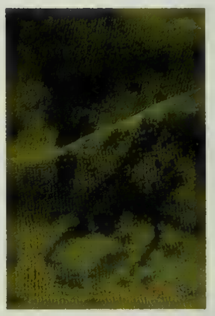




◄ Carpet and tile chic

Mannington Commercial has introduced the new Get Floored carpet collection as well as additions to several of its tile lines. Get Floored is available in three patterns: Tye Dye (left), playing on the movement of swirling color; Lava Lamp, an interpretation of a circular pattern displaying depth and movement from any angle; and Paint, an urban-chic linear pattern. Twenty-nine colors were added to the Vinyl Composition and Premium Visual tile lines (several shown above), for health-care, education, and retail applications. Mannington Commercial, Calhoun, Ga. www.mannington.com **CIRCLE 207**

◄ For dazzling surfaces

Dichroic is the latest material added to 3form's portfolio of resin products. Made of the company's signature ecoresin, Dichroic has an interlayer of light-refracting film that seizes light and manipulates it to create engaging effects, lending the panels an ethereal, luminescent quality and a palette of ever-changing hues. Available in two versions with different spectral ranges—warm Lunar and cool Solar—and two finishes: Sandstone for striking color shifts, and Supermatte for soft, white-washed color with gentle transitions. Dichroic is easy to clean and can be used in a range of environments. 3form, Salt Lake City. www.3-form.com **CIRCLE 208**

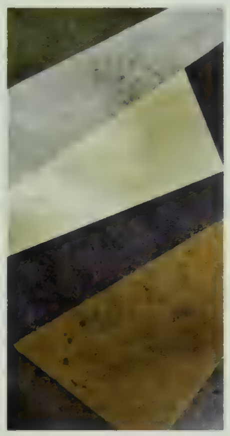
► New look for the workplace

Haworth will introduce the Planes collection of tables, carts, credenzas, podiums, and interchangeable boards with easel and wall applications this month at NeoCon in Chicago. The first phase of products for conference and collaborative spaces features multiple top thicknesses and shapes including round, square, pebble, rectangle, and hexagon. Boasting the ability to flip, store, share, conceal, connect, and plug in, the collection includes mobile tables with a flip top and mobility to reconfigure for collaborative environments. A second phase, including training, sit-to-stand, and café applications, is planned for the future. Haworth, Holland, Mich. www.haworth.com **CIRCLE 209**

Interiors Products

► Contract laminate collection

Wilsonart intends to change its image with the biggest decorative laminate launch in its history. The new Wilsonart Contract brand, which includes 44 new designs, was created specifically for interior designers, architects, and contractors who put laminate into offices, stores, hotels, restaurants, hospitals, and clinics. The line includes the first soapstone-inspired laminate (near right) in six design options: Tan, Pearl, Sable, Flame, Green, and Oiled. The Eastern Accents Series (far right) features three simple, linear, vertical-grain bamboo patterns and texture highlighted with charcoal, gray, taupe, and golden tones of brown. Wilsonart International, Temple, Tex. www.wilsonartcontract.com **CIRCLE 210**

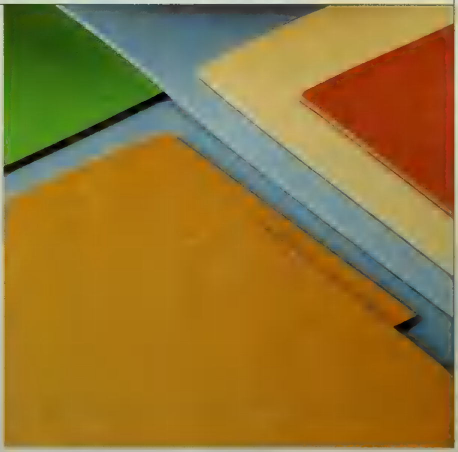


◄ A new look beneath your feet

Gensler recently designed the new corporate offices of Seyfarth Shaw, a large legal practice in Chicago. More than 24,000 square feet of Chilewich's Plynyl Terra Basketweave tile was specified for the secretarial stations located in each corner of the floors. The woven fabric for the vinyl floor tile has been reengineered to ensure the tile edges stay sharp and clean. The signature Basketweave pattern uses bicolored yarns to provide maximum durability and ease of maintenance. The tile backing, which includes approximately 15 percent postindustrial recycled content, provides cushion and dimensional stability through the use of two layers of vinyl and an intermediary nonwoven stabilizing layer. Chilewich, New York City. www.plynyl.com **CIRCLE 211**

► A bounce in your step

Freudenberg Building Systems presents nora sportsfloor, an impact-resistant sports floor for school, recreation, and multipurpose areas. The product, a rubber covering with a matte, antislip surface, is an ideal solution for applications such as indoor tracks. Easy and inexpensive to maintain due to a dirt- and stain-resistant surface, its shock-absorption qualities cut down on the risk of injury and reduce bruising. Environmentally friendly, nora sportsfloor is made of high-quality rubber, abundant natural fibers, and environmentally compatible color pigments. Freudenberg Building Systems, Lawrence, Mass. www.norarubber.com **CIRCLE 212**



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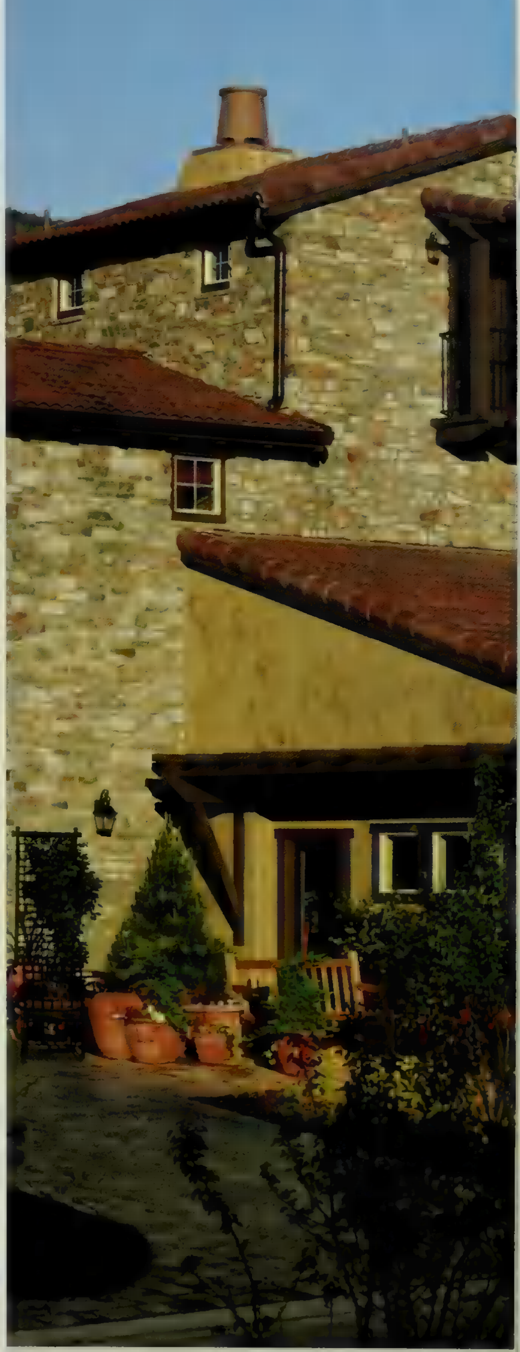

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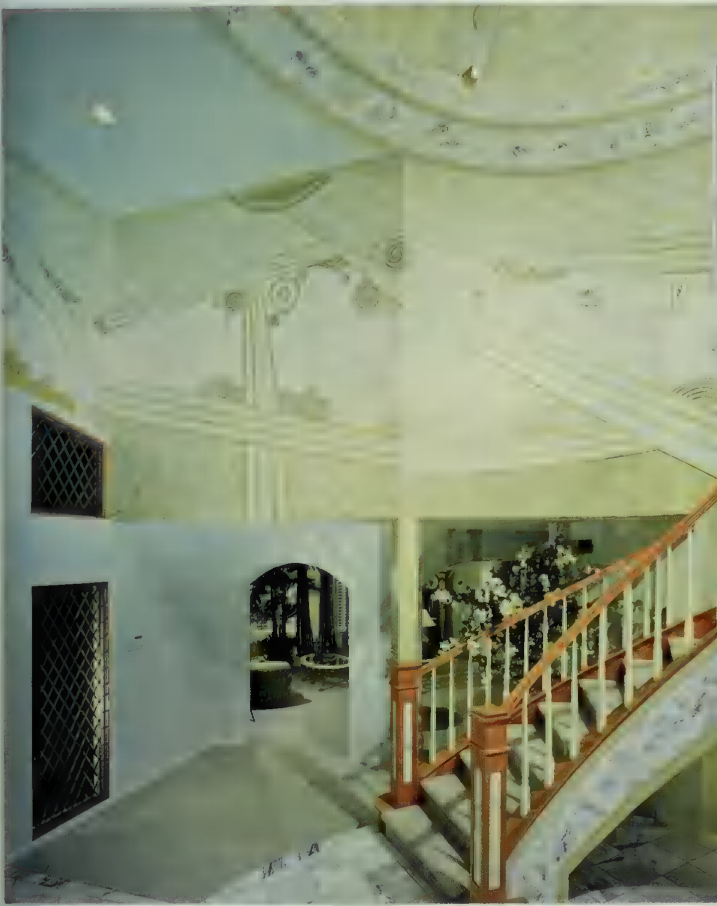
Product Focus Renovation & Restoration

Our roundup includes techniques and products **for preserving, renovating, and restoring.** For the latest trends and products, visit the Traditional Building show, held in New Orleans from October 17 to 20. *Rita Catinella Orrell*



Plaster relief artist Steve Selos at the drawing board (left). The grand entryway (far left) for a private residence remodel that took Selos and his team nine months to complete (detail, below).

Keeping the art of plaster relief alive and well in California

Originally from Swindon, England, plaster relief artist Steve Selos served a formal four-year apprenticeship in the United Kingdom and honed his craft on European textural ceiling projects. He later moved to Germany, where he worked for the cladding, coating, and restoration-systems manufacturer Sto Corp. on the development of an attachment system for its EIFS products. Selos emigrated to the United States in the early 1980s and currently runs his company, Selos Creative Finishes, out of Alta Loma, California.

Focused on creating high-end plaster artwork for walls and ceilings, the artist currently spends about three quarters of his time on residential work and the remainder on commercial projects, such as private offices, churches, and restaurants. Selos combines sculpture, design, and painting on both traditional and contemporary surfaces, and his repertoire of techniques includes bas-relief, Venetian plaster, and trompe-l'oeil. He has copyrighted a number of his more unusual techniques, and like other artists, signs his work. Over the years, he has developed a devoted client base, and nearly 70 percent of his work is for repeat clients.

While in Europe, Selos worked on historic renovation, including molding repair, but his focus has shifted to new-build and general renovation. "My approach to the renovation of things is that it's invisible," explains Selos, who sometimes collaborates with paint experts in order to help create a seamless extension of the existing finishes.

Selos's low-key approach extends to how he works with his clients; he describes himself as a tool for the builder or architect. "I'm just an applicator of the client's wishes—until they ask me what I think I can get out of the architecture using natural light, or traffic patterns, or architectural features, and then I highlight or calm down whatever is there." To do so, Selos incorporates long, sweeping arches or strong straight lines to achieve the impact or emotion he is trying to evoke. For a grand entryway for a private residence ("one of the pinnacles of my career"), he used a range of techniques, including carving, trompe-l'oeil, and gold leaf. "I wanted to draw everything I could into the grandness of the architecture." Selos Creative Finishes, Alta Loma, Calif. www.selosart.com **CIRCLE 213**

▲ Helping to keep the light on

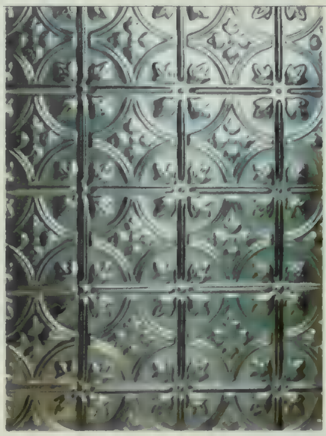
Jeld-Wen has selected two landmark lighthouse projects as part of this year's Reliable Lighthouse Restoration Initiative: Thomas Point Shoal on Chesapeake Bay and Wind Point Lighthouse on Lake Michigan. For the Thomas Point Shoal (above right), Jeld-Wen will replace eight windows and two entry doors. To preserve the lighthouse's architectural integrity, primed Custom Wood Windows (above left) with the AuraLast wood process will be installed and then painted. Jeld-Wen Windows and Doors, Klamath Falls, Ore. www.jeld-wen.com **CIRCLE 215**

▼ Wait a second ... the student union was once what?

Functioning as a Denver brewery from 1866 to 1966, the Auraria Higher Education Center's Tivoli Student Union building also served as a mall before becoming a student union in 1994. As part of a $20 million makeover, more than 180 window units were replaced with custom, energy-efficient, historically stylized windows from Kolbe. The window-replacement process was challenging since virtually all of the openings varied in dimension and several different window profiles, brick facings, and mortar types needed to be matched. Kolbe & Kolbe Millwork Co., Wausua, Wis. www.kolbe-kolbe.com **CIRCLE 214**

◄ Curb appeal

Cambridge Architectural's Facade mesh system was used to visually differentiate the exterior of an apartment building in Washington, D.C., in conjunction with a $21 million renovation of the building, which included a new facade, windows, storefronts, and ventilation system. The mesh system was installed vertically as a backdrop for the large, illuminated 1330 sign on the front of the brick tower. As part of the facade rehab, the metal fabric was embedded directly into the structure. Cambridge Architectural, Cambridge, Md. www.cambridgearchitectural.com **CIRCLE 216**



◄ Historic look of tin

Armstrong's Metallaire product line features 12 styles of decorative metal ceiling tiles. Offered in five finishes, including brass, copper, chrome, white, and stainless steel, designs are available in 2' x 4' for direct application to an existing ceiling through the use of furring strips, and 2' x 2' for drop-in grid applications. Tiles are priced at approximately $4 to $10 per square foot. Armstrong Building Products, Lancaster, Pa. www.armstrong.com **CIRCLE 217**

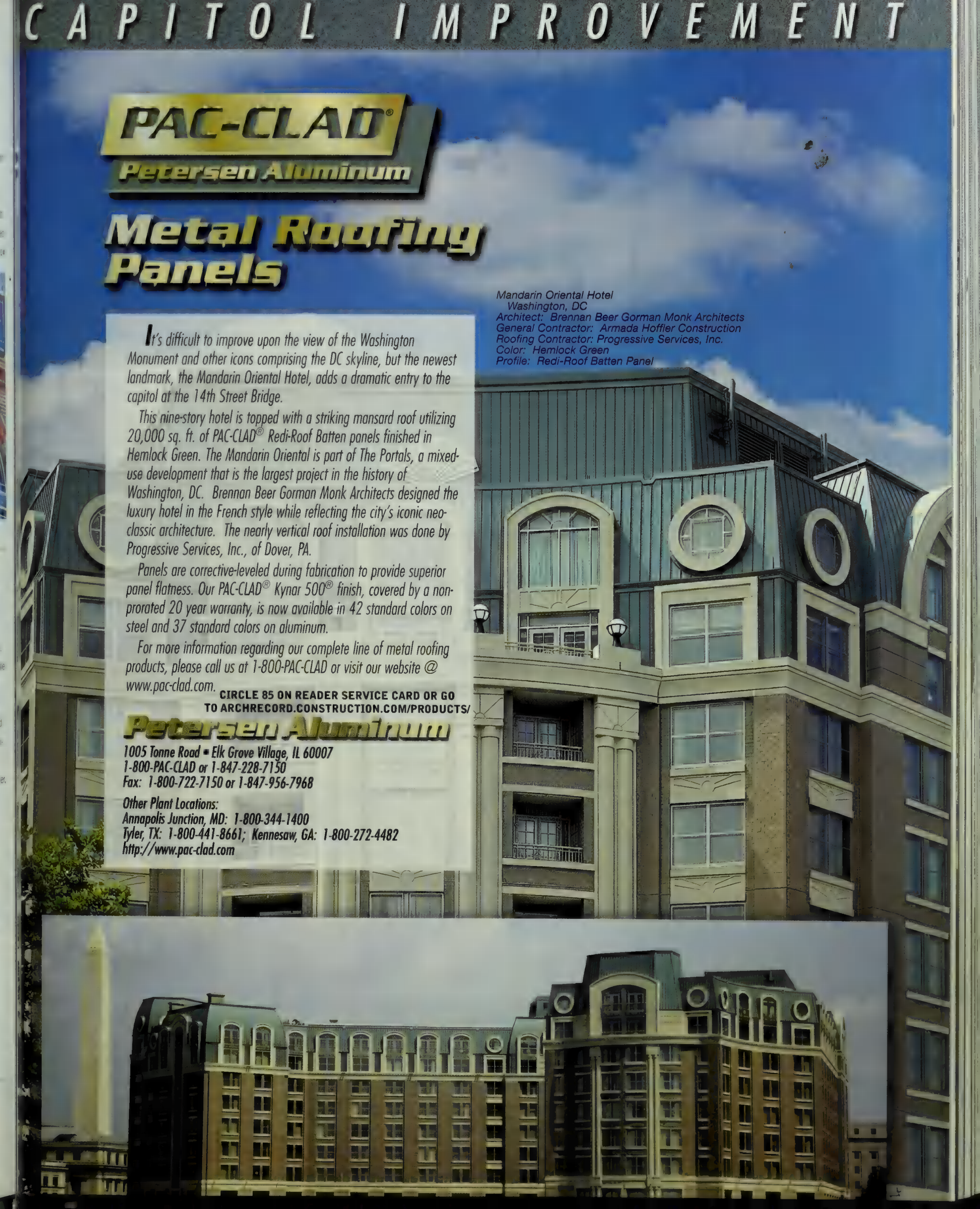
► Reliable fire-stopping

In an effort to get consistency in applications and code compliance on remodeling and renovation work, and as part of the overall risk management and loss prevention strategy for the complex, managers of San Francisco's Embarcadero Center Complex utilized a Barrier Management Program to assure the reliability of fire and life safety features and systems. The EZ-Path fire-rated pathway (shown) was used for firestopping cable penetrations in the buildings. Specified Technologies, Somerville, N.J. www.stifirestop.com **CIRCLE 218**

► Not a striptease

Applied by brush, roller, or spray equipment, Smart Strip paint stripper by Peel Away will remove up to 15 layers of architectural and/or industrial coatings from virtually any substrate. A water-based, self-sealing paste, Smart Strip stays wet for 24 hours or longer, softening and separating the coatings beneath. Classified as nonhazardous, Smart Strip is pH neutral, does not contain caustics or toxic chemicals, and has zero VOCs. Dumond Chemicals, New York City. www.dumondchemicals.com **CIRCLE 219**

For more information, circle item numbers on Reader Service Card or go to **architecturalrecord.com/products/**.



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Mandarin Oriental Hotel
Washington, DC
Architect: Brennan Beer Gorman Monk Architects
General Contractor: Armada Hoffler Construction
Roofing Contractor: Progressive Services, Inc.
Color: Hemlock Green
Profile: Redi-Roof Batten Panel

It's difficult to improve upon the view of the Washington Monument and other icons comprising the DC skyline, but the newest landmark, the Mandarin Oriental Hotel, adds a dramatic entry to the capitol at the 14th Street Bridge.

This nine-story hotel is topped with a striking mansard roof utilizing 20,000 sq. ft. of PAC-CLAD® Redi-Roof Batten panels finished in Hemlock Green. The Mandarin Oriental is part of The Portals, a mixed-use development that is the largest project in the history of Washington, DC. Brennan Beer Gorman Monk Architects designed the luxury hotel in the French style while reflecting the city's iconic neo-classic architecture. The nearly vertical roof installation was done by Progressive Services, Inc., of Dover, PA.

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Product Briefs

▲ Alternative roofing

DaVinci Roofscapes has developed new synthetic slate and shake shingles as a long-lasting alternative to the high cost, installation and maintenance hassles, and safety hazards of natural materials. DaVinci offers the widest variety of off-the-shelf slate color blends, including 19 earth-tone colors and seven traditional blends plus solid gray and black. Among the new designs are Weathered Green Blend (above right), with verdant and sylvan greens, grays, and tans interlaced in an earthy and pastoral pattern; a classic slate-gray blend; Vineyard Blend, a mixture of tans, greens, and purples; and Aberdeen Blend, a color-patchwork medley that incorporates earthy browns, grays, greens, and purples. DaVinci Roofscapes, Kansas City, Kan. www.davinciroofscapes.com **CIRCLE 220**

▲ Looking up

Naturalite Skylight Systems was selected to provide the skylights for the Tanforan Shopping Center in San Bruno, California. The site, originally a racetrack built in 1899 and later used as an internment camp for Japanese-Americans during World War II, was transformed into a mall in 1971. In 2003, the building was demolished to make room for a new mall designed by L.A.-based Altoon + Porter Architects. General contractor Whiting Turner Construction of Pleasanton, California, and skylight contractor Vogel and Associates of San Carlos, California, selected custom BMS 3000 skylights, in several shapes and sizes, along with low-E insulating glass from AFGD as the infill. The skylight framing systems feature a clear anodized finish. Naturalite Skylight Systems, Dallas. www.naturalite.com **CIRCLE 221**

Natural Light

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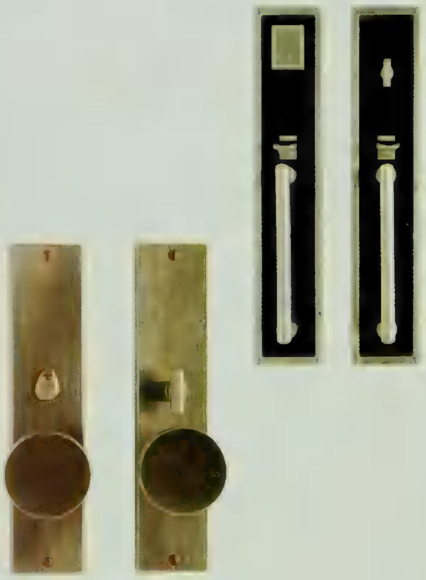
Product Briefs

► Getting a better handle on it

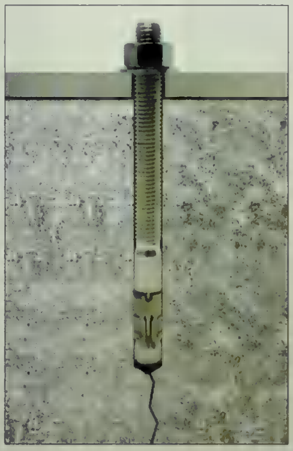


Rocky Mountain Hardware has introduced three new product lines: the Metro Collection, the Designer Collection, and the Tile Collection. The pure lines of the Metro Collection, such as the Metro escutcheon and Luna knob in brushed silicon bronze (left two), complement contemporary styles. The Thumblatch entry set in brushed white bronze with black leather (right two) is an example of the Designer Collection, which incorporates textures and hues ranging from rich chocolate leather to a tapestry pattern reminiscent of hand-tooled leather. The Tile Collection features items styled with sleek lines and a variety of hand-etched organic patterns. Rocky Mountain Hardware, Windsor, Calif. www.rockymountainhardware.com **CIRCLE 222**

▼ Serviceable sink systems

According to Sloan Valve Company, its 7000 series SloanStone solid-surface lavatory systems are one of the fastest-installing and most easily serviceable sink systems on the market. The new double- and triple-station systems are the only lavatories to incorporate true point-of-use sensor faucet operation for accurate, water-efficient hand-washing. SloanStone withstands heat and resists stains and chemicals. To better handle runoff and prevent clogs, the system features design-integrated overflows for each supply, as well as grid strainers that lead to separate waste lines. The new continuos-curve basin design, in 24 solid and speckled finishes, eliminates the institutional look of most commercial lavs, yet stands up to any high-use restroom application. Sloan Valve Company, Palatine, Ill. www.sloanvalve.com **CIRCLE 223**

► Passes the test



Simpson Strong-Tie presents the Strong-Bolt, the first postinstalled anchor that is code-listed for use in cracked concrete. New design provisions referenced in the 2003 and 2006 International Building Code require more stringent testing to prequalify anchors installed in concrete that is susceptible to cracks. The Strong-Bolt is one of the first wedge-type expansion anchors to obtain a code listing under the new test criteria for anchors installed in concrete that is susceptible to cracks. The anchor is listed for use in normal-weight and lightweight cracked and uncracked concrete as well as in moderate and high seismic zones. Simpson Strong-Tie, San Francisco. www.strongtie.com **CIRCLE 224**

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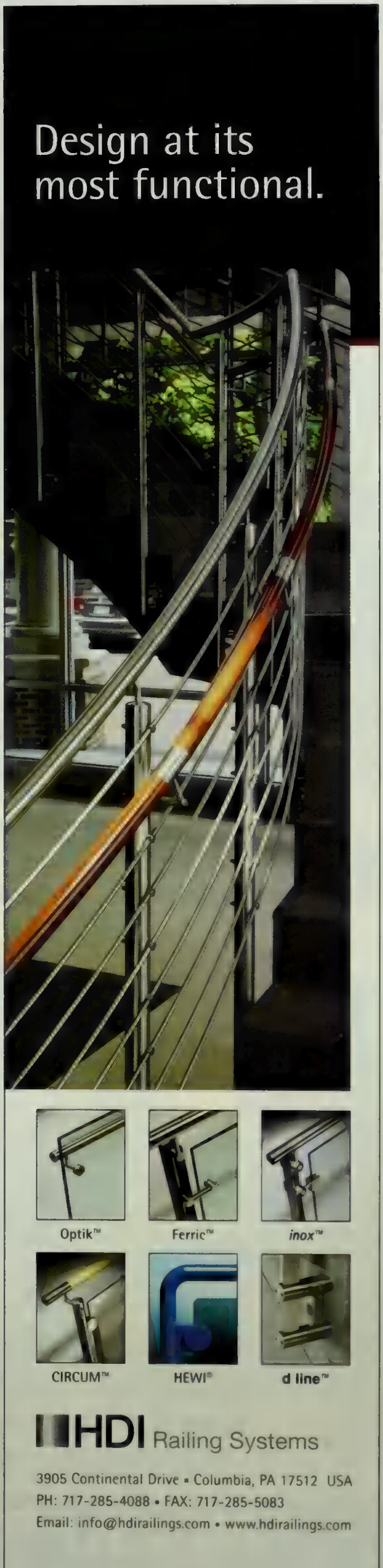

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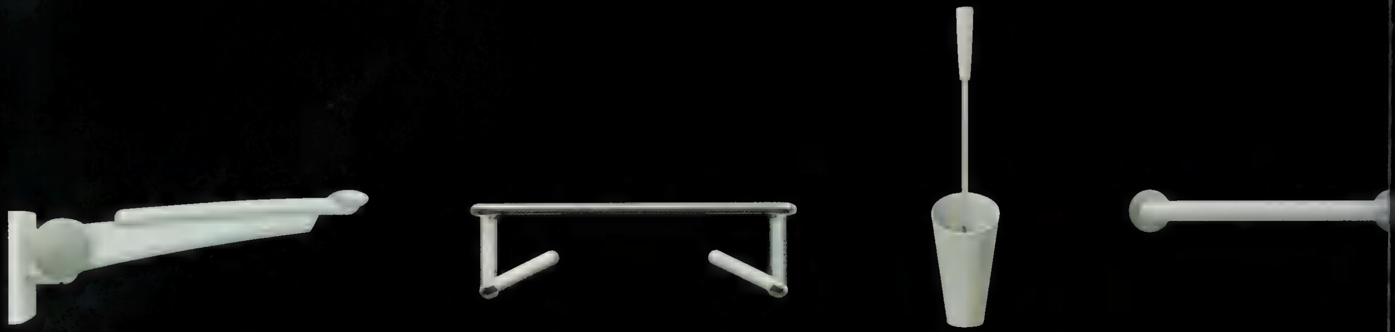

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age images of McNichols's woven,
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ıcts into architectural designs.
chols, Tampa. www.mcnichols.com
E 225

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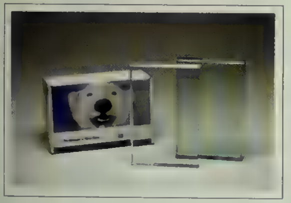
E 227

New ways to see color

A variety of selection tools display the 2,016 colors in the new *Dulux Global Color Palette* for professional use. *Colour Futures* forecasts trends for 2007, noting 56 colors that represent five lifestyle themes for the coming year, as well as announcing transitions in each color family. ICI Paints, Strongsville, Ohio. www.icipaints.com **CIRCLE 226**

Putting it to the test

Context, a new catalog concept from Chicago Metallic, features 27 ceiling designs photographed in actual buildings. Accompanying each installation is the architect, name, and location; the type of ceiling and Chicago Metallic materials used; and an outline of the specific design challenge. Chicago Metallic, Chicago. www.chicagometallic.com **CIRCLE 228**



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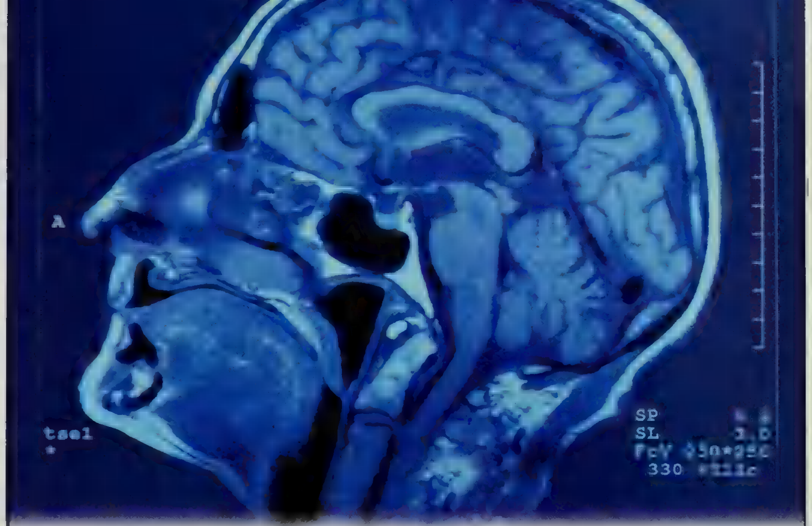

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MRI machines have changed the face of medicine. They allow physicians to quickly make a thorough diagnosis without the need for costly and even painful exploratory surgery. Installation of these machines, however, can be a challenge for design professionals. They're too large to fit through most doorways and have even more trouble with elevators.

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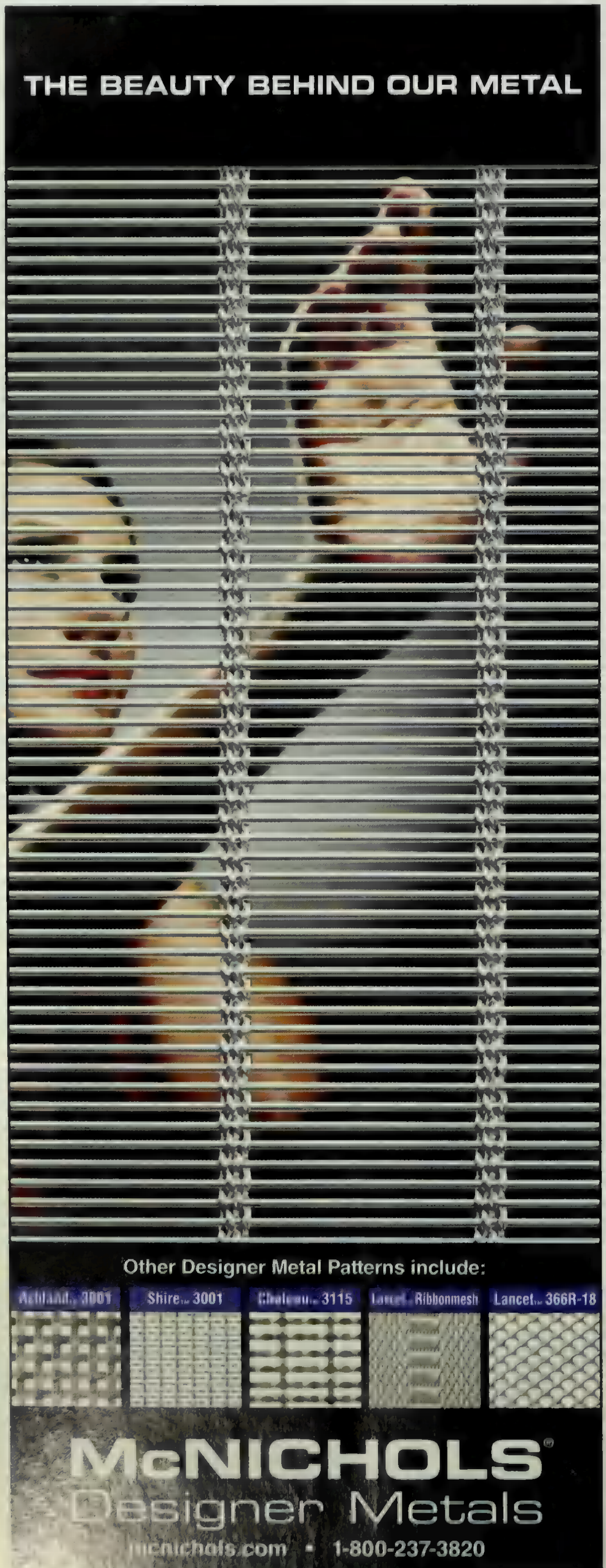
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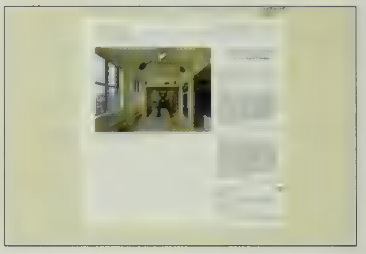

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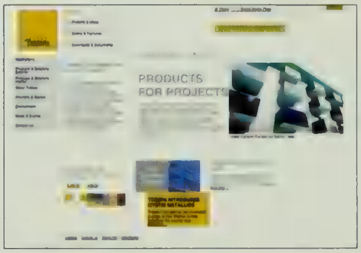
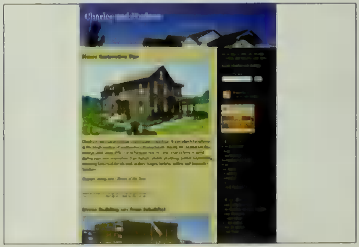
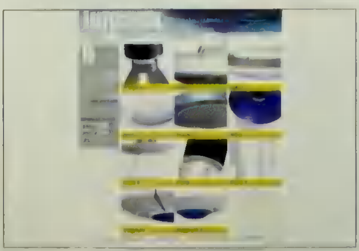
Designers can reach the media by posting their work at this Web site. The 2006 winner of *Building Design+Construction* magazine's "Best of the Web" award, Plaid Robot hosts member-submitted high-res images, which the media can download with approval. Pitches and press releases can be sent to publications that register with the site. Editors and freelance writers can search for design work, but designers do not have access to each other's posts. A message board is being developed for the media to post exactly what it is they are searching for.



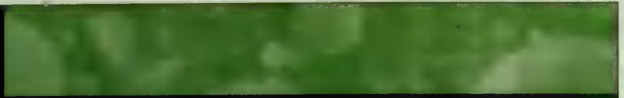
www.trespa.com
International panel manufacturer Trespa's Web site lists pages of ideas for using its products, including images of panels on existing buildings. Brochures, CAD drawings, and certificates are available for download. A disclaimer explains that the site was specifically developed for browsing with Internet Explorer 6 and a screen resolution of 1024 x 768. Using other browsers, an older version of Explorer, or other screen resolutions may lead to visual distortions.



www.charlesandhudson.com
While Charles and Hudson is a do-it-yourself blog, it might be an interesting read for professionals. Topics covered include remodeling, design, repair and maintenance, tools and products, real estate, restoration, build-it-yourself, and green building. Founded in 2005, the blog is run by *This Old House* senior Web producer Timothy Dahl, although the site has no affiliation with the magazine. The site is filled with helpful information, as well as dozens of links to other blogs and magazine Web sites.



www.impactltg.com
Impact, the St. Louis–based spec-grade architectural lighting fixture manufacturer, has added a product gallery to its Web site, which can be accessed from the vertical navigation bar at the left of the home page. A grid of thumbnails displays dimensions and names for a number of lighting fixture designs, and each image can be enlarged for closer viewing. However, there is only one image of each product and specific information is limited, a feature that could be improved.



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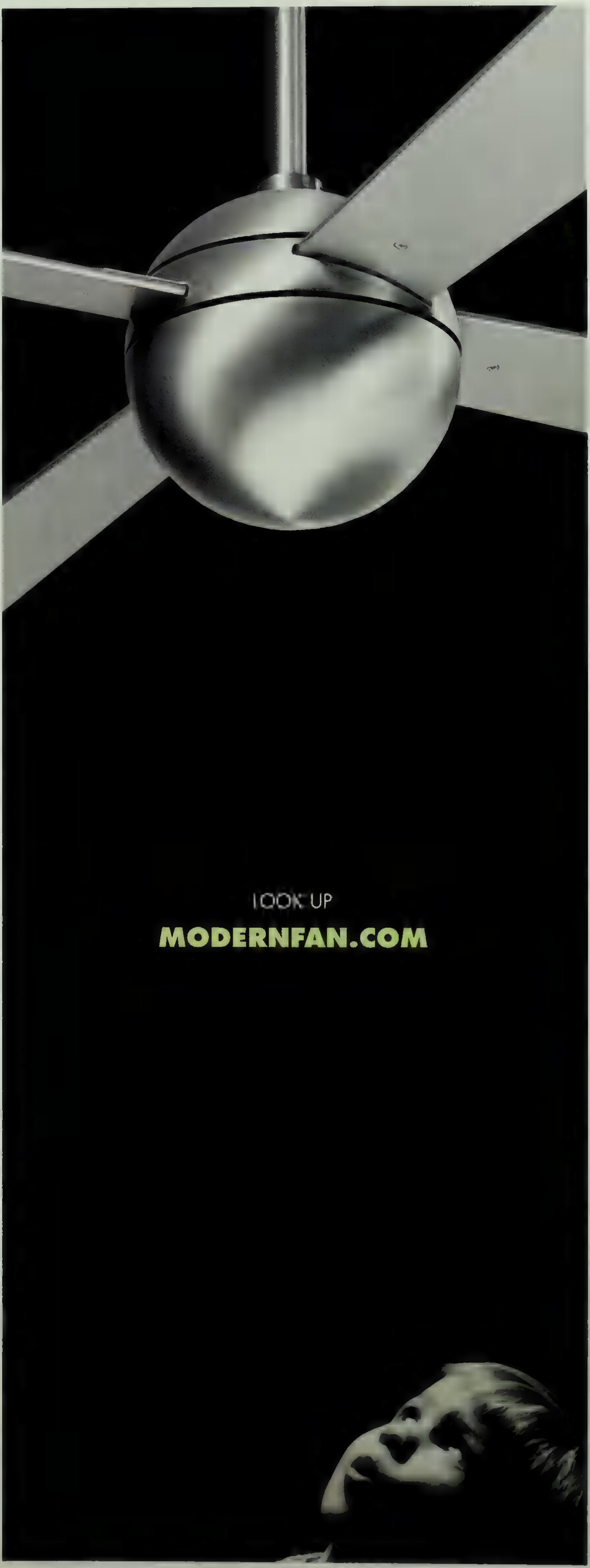

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REMAKING NEW ORLEANS *(continued from page 92)*

his mind than ornamental gingerbread and authentic replacement windows. A barrier to previous campaigns to put blighted buildings into the hands of new owners had been the tedious task of clearing titles. Finding owners was daunting before Katrina and is often impossible now. Another hurdle is the law that gives owners three years to pay off taxes and reclaim properties. Williams hopes to petition the state legislature for a liberalization of that constraint to shorten the time owners have to reclaim tax-delinquent properties. Some experts have put the tipping point for the city's return to viability at a population of at least 350,000 residents versus its pre-Katrina population of 480,000. Estimates say about 223,000 people currently live in the city.

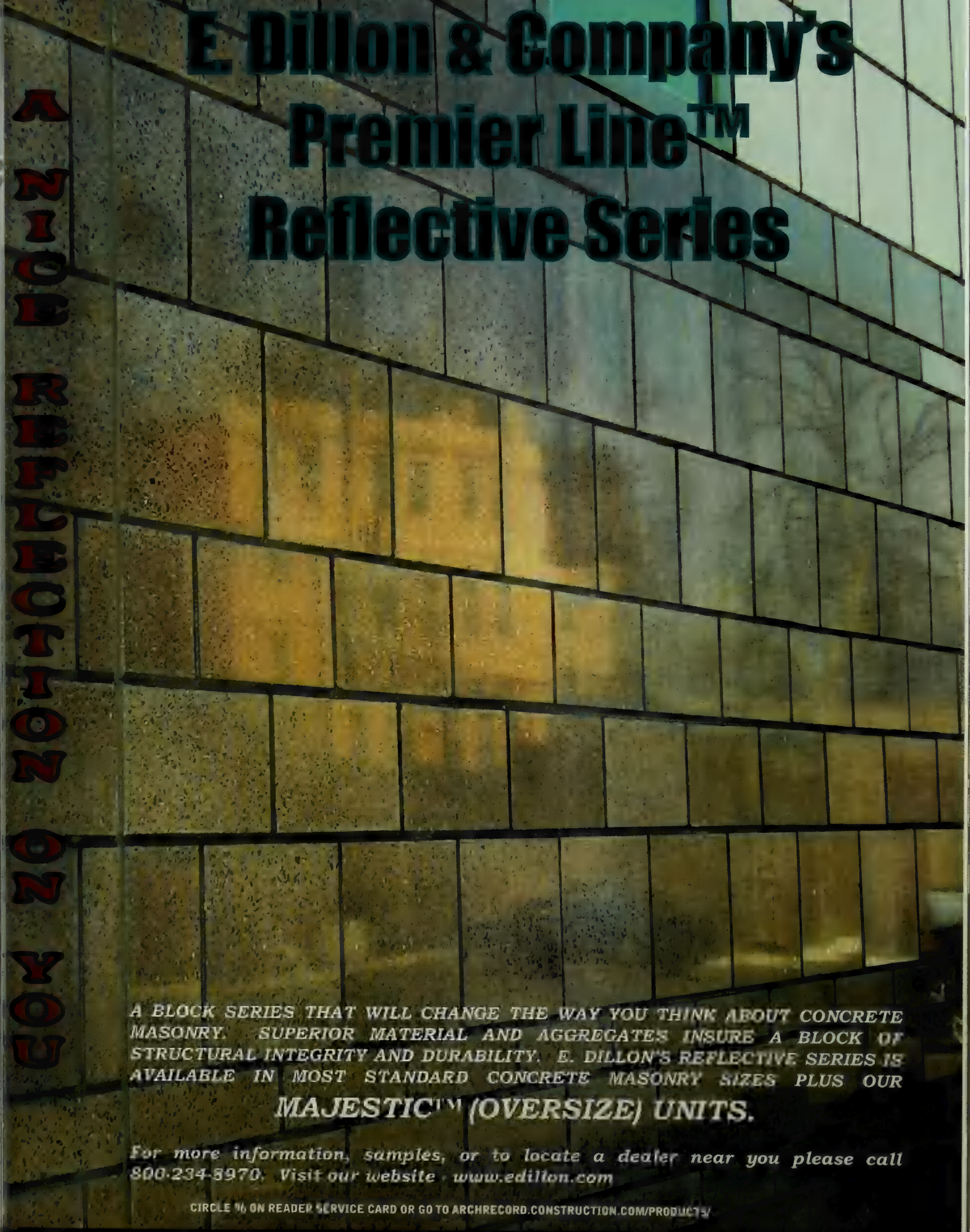
Angela O'Byrne, an architect and advocate for multifamily housing, subscribes to the "higher density on higher ground" school of thought when it comes to the city's future. "People in our community still resist what I consider concepts of smart growth that forward-thinking cities all over the world have accepted. They link density with renters and renters with poverty," says O'Byrne, a former president of the New Orleans chapter of the AIA and president and owner of Perez Architects. "You can achieve the objective of mixed-income housing without sacrificing quality if it is done correctly." O'Byrne says the key is the right amount of investment going into the developments and quality management after that.

O'Byrne points to Oakland's award-winning Mandela Gateway as an example of the kind of development she would like to see in New Orleans. The mixed-income, mixed-use development that replaced a dilapidated public housing complex includes 168 units of affordable rental housing and owner-occupied town houses. Developed by the Oakland Housing Authority and nonprofit BRIDGE Housing Corporation, the rental component—which opened in 2004—has spurred commercial and residential development nearby.

What others see as the greatest threat to the city's future is the temptation to get stuck in the past. "I do have some concerns that the city will be built back in an artificial way," says E. Eean McNaughton, Jr., an architect in private practice and a member of the Regional Planning Commission. "I believe that we should lie down and die to protect what is original to our city. But if we do it right, what is built now will reflect this place at this time."

McNaughton acknowledges that this concept is often a hard sell in New Orleans. And to that point Sean Cummings, a local developer who currently serves as the executive director of the New Orleans Building Corporation's ambitious riverfront development initiative, says those who shape the landscape—builders, designers and planners—have a duty to educate the public. "A city is like a human being, it is supposed to evolve," he says. "Where has it ever worked to do the same thing over and over again?" he asks, noting, "It's such a short-sighted approach to re-creating a city. You look to cities like Chicago or New York or cities even older than New Orleans like Barcelona; you'll find a mix of the old and the new. These places all have a strong sense of place. Our challenge is to create architectural beauty of this time and have it be obviously a part of New Orleans."

Regardless of which of these contrasting visions prevails, the challenge of the Katrina catastrophe has overwhelmed the nation's traditional methods of cleanup and recovery. The scale of this disaster was never contemplated by the existing federal law: 134,000 housing units damaged of 188,000 occupied before the storm, and 68,000 rental units damaged of 100,000 available pre-Katrina. Moreover, in a city where 113,000 units are over 50 years old, most of the city's historic housing is at risk. The question now is not whether to preserve or develop New Orleans, but how to do both. ■



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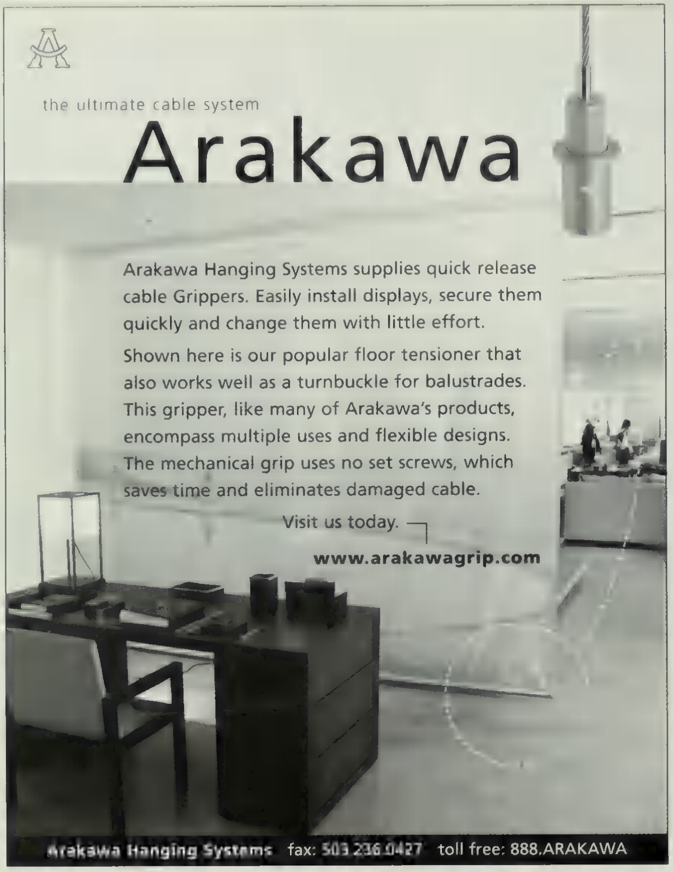

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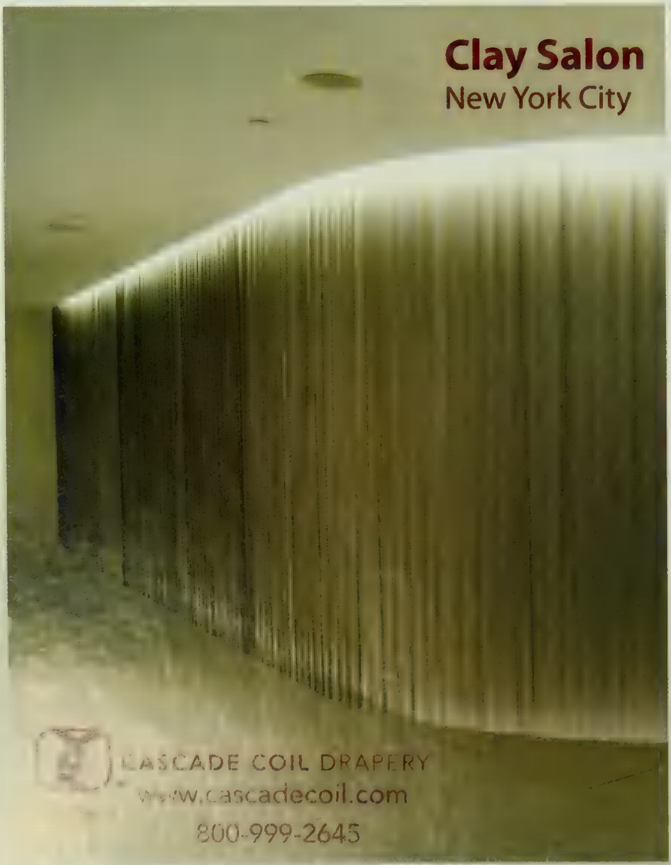

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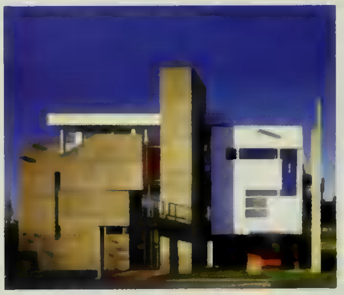
FIRMINY *(continued from page 115)*

contributions in effect relax Le Corbusier's original tendencies toward an oppressive self-seriousness. This is most evident in Oubrerie's handling of the two aspects of the design that remained largely undetermined during the work with Le Corbusier, the entryway and roof. All of the sketches and models show the roof conceived as part and parcel of a massive monolith. But forms in the hyperbolic paraboloid family are infinite shells with no intrinsic top; diagrammatically, therefore, any roof must be a section cut by a plane. At Chandigarh, Le Corbusier solved the problem with a cap bedecking the hyperbolic parabaloid surface like a crown. At Firminy, Oubrerie's solution is more satisfying conceptually and visually. Instead of a cap, he fit a checkerboard of concrete panels just inside the lip of the hyperbolic paraboloid surface. The panels cover the black roofing membrane to give the sense of a monolith, but also reveal the membrane at the circumference to suggest a void.

To complete the entry design, Oubrerie revisited an earlier scheme and erected a solid outer wall to run the length of the bridge, cutting off views and focusing attention inward on the church-as-object. But just as the bridge joins the portico, Oubrerie punctured the wall with a large opening to reveal one last view of the quotidian world, as if to ask whether the decision to leave it behind is final. As noted before, the exterior ramp's geometry requires that the worshiper, once inside the portico, must turn to enter the sanctuary. Oubrerie chose to aggravate, rather than soften, the turn, by dead-ending the path with a blank wall and signaling the turn with an arresting treatment of the door. The darkened, compressed enclosure of the portico heightens dramatically the play of space and light to follow.



José Oubrerie's acclaimed Miller House in Lexington, Kentucky, of 1992.

The fond cunning of Oubrerie's contributions to the church is no accident and confounds the question of whether the building is historic reconstitution or contemporary interpretation. As his incomparable Miller House in Lexington, Kentucky, of 1992 affirms, Oubrerie has long since developed into an architect of rare originality, one who maintains an insatiable interest in contemporary architecture and its discourse. With Firminy, as he has pointed out, "The two features of contemporary interest [are] the shell and its geometrical definition and the continuous floor (influential perhaps in Koolhaas's library in Paris), the spiral that guides and activates the inner transformation from horizontality to verticality."

Oubrerie invented the torqued floor during the work with Le Corbusier to solve problems created by the church's declining budget and size, but his intuition of its pertinence today is on point. Koolhaas's 1993 competition entry design for Jussieu University Library in Paris, with its continuous, warped spiraling floor, helped spur a line of architectural design research that continues today, including Koolhaas's Seattle Central Library [RECORD, July 2004, page 88]. UN Studio has cited the floor at Firminy as an antecedent to the trefoil circulation in its Mercedes Museum in Stuttgart, Germany [RECORD, November 2006, page 126]. As with any definitive work, the Eglise Saint-Pierre is an interlocutor in many current conversations—conversations that beg the question of new or old, historic or contemporary. ■

Sources, see page 138. To rate this project, go to **architecturalrecord.com/projects/**.

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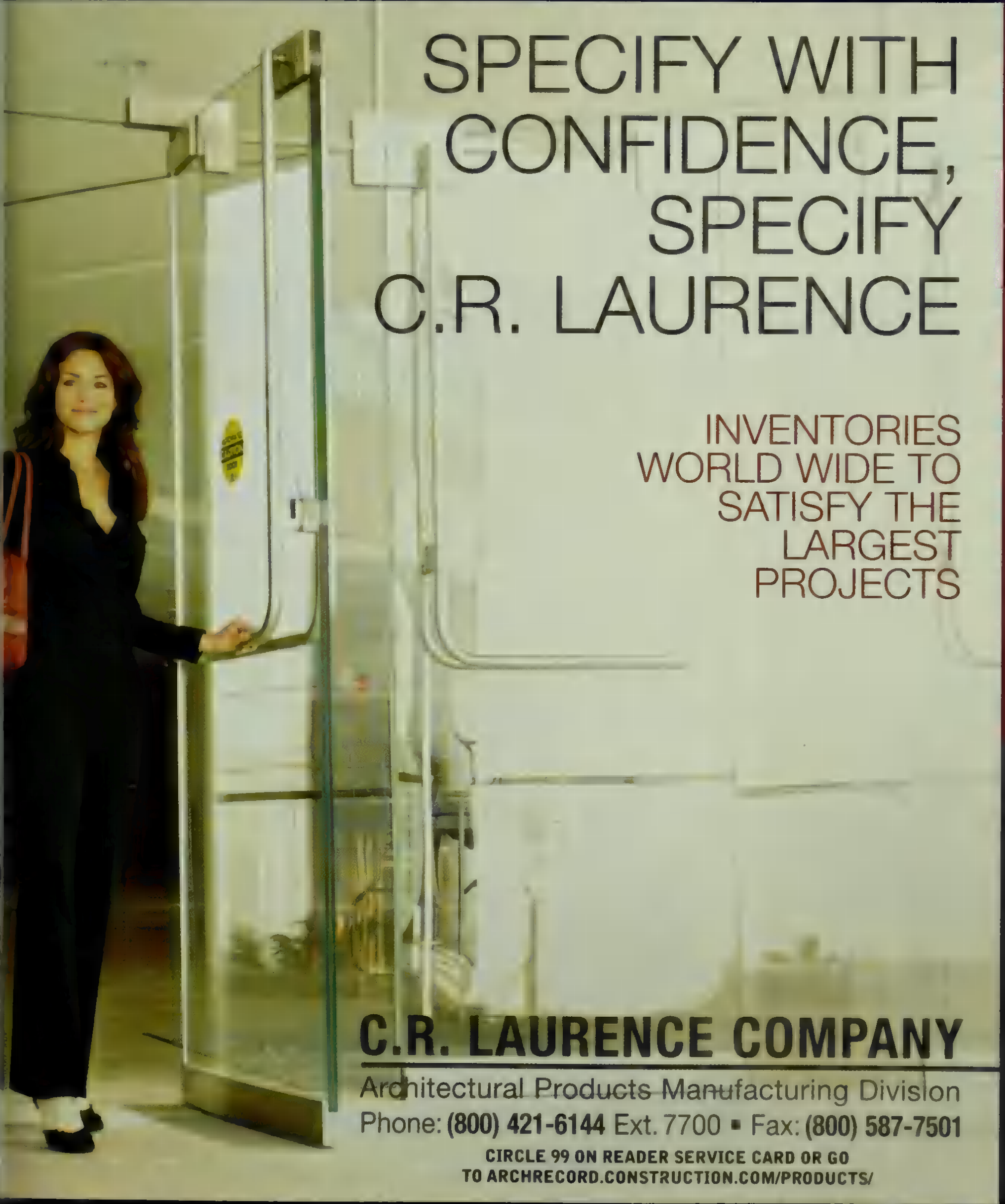

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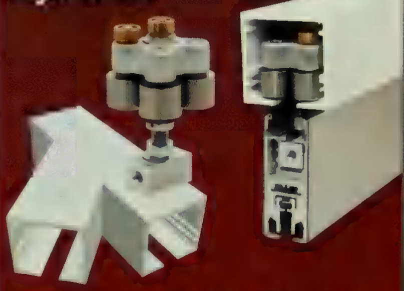

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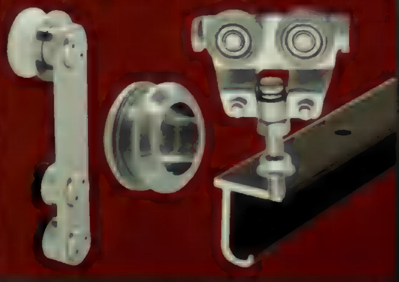

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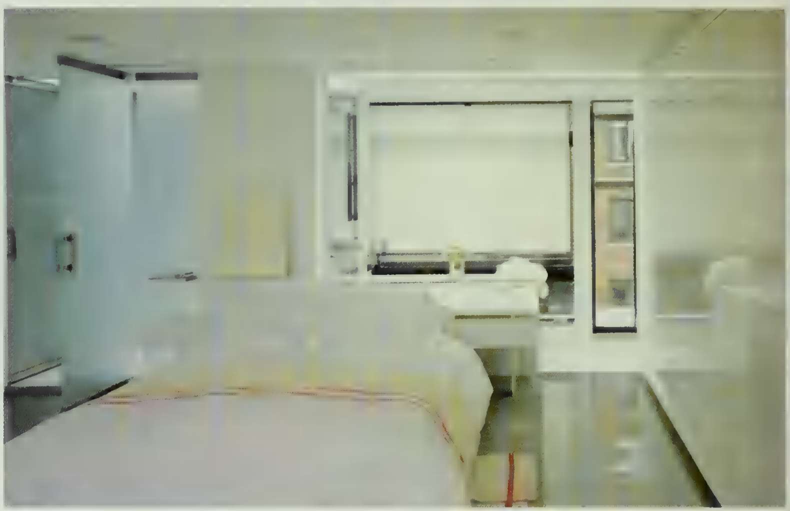
RUDOLPH PENTHOUSE *(continued from page 121)*

presented another challenge. The glass studio projecting over the street to the west rested on sagging steel beams. So the team inserted new steel within the webs of the I-beams and rewelded them to shore up a cantilevered portion of the penthouse. Elsewhere, they replaced steel framing members that projected out to the East River and to the south, where a neighbor's new brick wall blocks views. (The legality of the action is still being contested.) They also had to redo much of the west, north, and south facades' stuccoed surfaces, which covered metal studs or concrete block.

Needless to say, working out the construction sequence for the new insertions proved a logistical nightmare. The real headache in the 20-month process was the installation of new cabinetry, shelving, and other millwork. One challenge was to get it to fit precisely once finishes were applied. The coping around the steel beams didn't make inserting the new cabinetry any easier, notes Bernheimer. So the team installed the unfinished millwork, then took it down, painted, finished, reinstalled it. Since exterior overhangs precluded the use of cranes to move in large pieces, the team had to rely on the building's tiny elevator—which meant more disassembling of large elements.

The tortuous job was finished last fall. Though sparer than Rudolph's original, that may change as the owner fleshes out the place with furniture and art. Asked what Rudolph probably would think of the latest version, Della Valle and Bernheimer say they both hope he would have liked it: "We challenged ourselves to the limit. Without mimicking him, we took what he created to generate something new—yet stay true to the idea." Due to the entire team's imagination and craft, the apartment remains a testament to Rudolph's basic concept. It's too bad that, unlike Soane's chef d'oeuvre, it doesn't belong to the state—nor is it a city landmark. Its future will always depend on the kindness of owners. ■



On the top level of the penthouse, the master bedroom looks out to both the east and west terraces, and opens onto the master tub room, as it did in Paul Rudolph's time.

Sources, see page 138. To rate this project, go to ***architecturalrecord.com****/projects/*.

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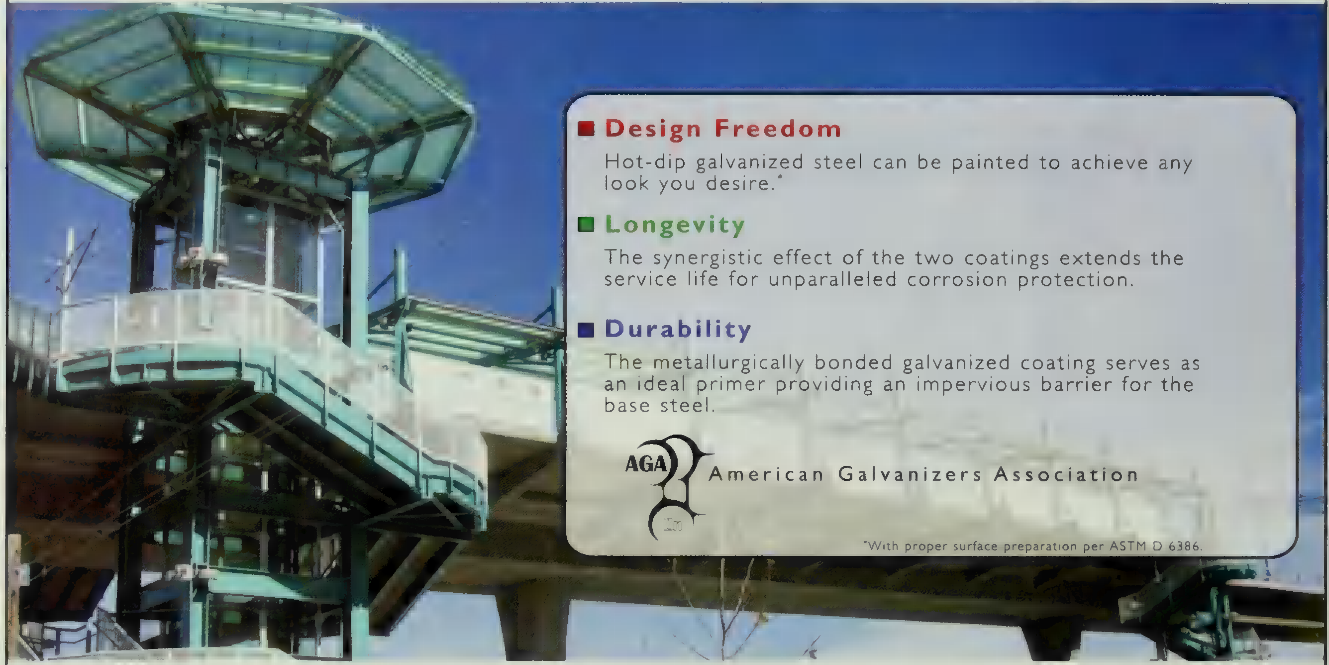

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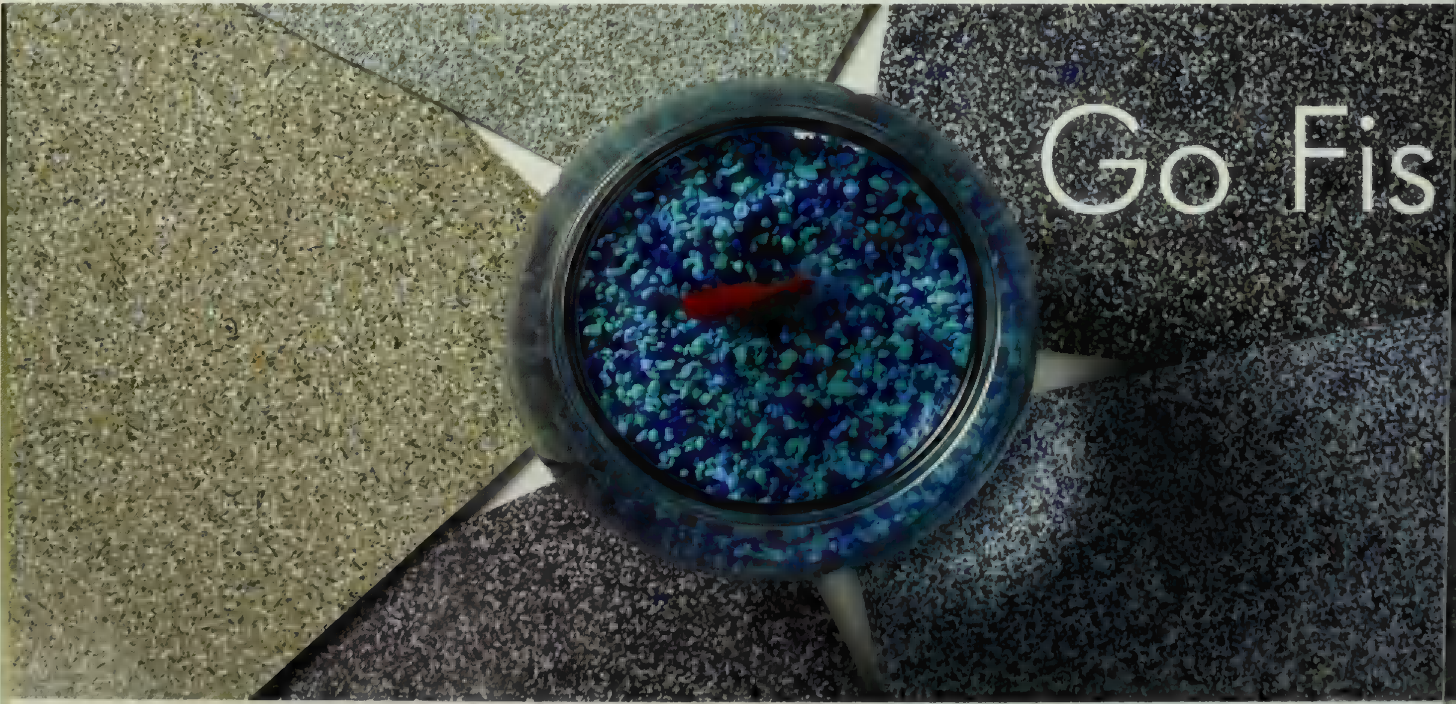

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Dates & Events

New and Upcoming Exhibitions

AIA150

Studio @ the Center: Lighting Design
New York City
June 7–August 4, 2007
This exhibition will highlight the work of 12 students from the High School of Art and Design who are taking part in the intensive after-school program that exposes them to one area of design through interaction with design professionals. At the Center for Architecture. Call 212/683-0023 or visit www.aiany.org.

IDEO Selects: Works from the Permanent Collection
New York City
June 22, 2007–Jan. 20, 2008
IDEO, a leading innovation and design firm for more than 20 years, mined the Cooper-Hewitt's permanent collection as the fourth guest curator in the exhibition series presented in the Nancy and Edwin Marks Gallery. IDEO will organize works around the theme of "design thinking." The exhibition objects range from the 16th-century to the present, and despite their diversity of intent, media, and context, reveal a shared story about the ways in which the designer is called upon to solve everyday problems. At the Cooper-Hewitt, National Design Museum. Call 212/849-8400 or visit http://ndm.si.edu/.

Young Architects Program
New York City
June 27—September 8, 2007
This exhibition features the proposals of the five finalists of the MoMA/P.S.1 Young Architects Program. Now in its eighth year, the program calls on emerging architects to create a temporary installation in P.S.1's courtyard, which will serve as the setting for the museum's summertime Warm Up series. The designers present engaging architectural solutions that modulate sun, shade, and water in this outdoor space. This year's finalists included Ball-Nogues (Los Angeles), Gage/Clemenceau Architects (New York), IwamotoScott (San Francisco), Mos (Cambridge, Massachusetts-New Haven), and Ruy Klein (New York). At the Museum of Modern Art. Call 212/708-9400 or visit www.moma.org.

AIA150

AIA/Los Angeles Design Awards Exhibit
Los Angeles
June 28–July 16, 2207
This show offers an opportunity for the public to experience and celebrate the quality and variety of Los Angeles Architecture, showcasing more than 350 Design Awards from 2007 and Next LA entries. At the Broad Art Center at UCLA. Call 213/639-0777 or visit www.aialosangeles.org.

On a Grand Scale: The Hall of Architecture at 100
Pittsburgh
September 22, 2007–January 13, 2008
In celebration of the 100th anniversary of the Carnegie Museum of Art's Hall of Architecture, the museum will present an exhibition surveying

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its collection of nearly 150 plaster architectural casts that Andrew Carnegie created specifically for this magisterial space. At the time of the hall's inauguration in April 1907, the museum joined the ranks of prominent American museums exhibiting plaster casts of monuments from around the world. To ensure the hall's relevance to visitors, Carnegie surveyed architects of the day to determine which casts the museum would acquire. At the Heinz Architectural Center. For more information, call 412/622-3131 or visit www.cmoa.org.

Ongoing Exhibitions

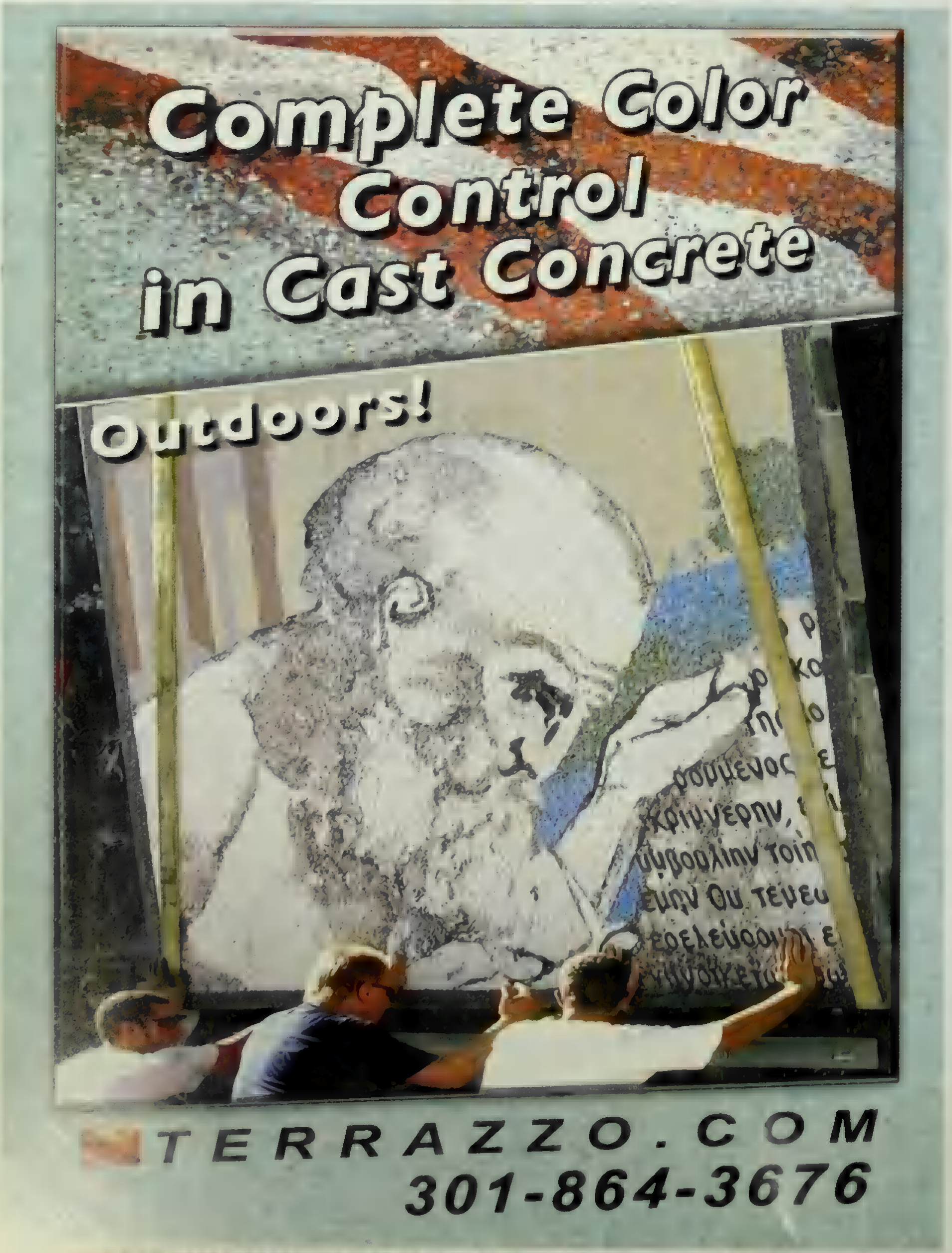
Snapshot 007: Current Houston Design on View
Houston
Through June 16, 2007
The fifth open-call exhibition showcasing architecture, urban planning, preservation, landscape architecture, interiors, furniture, and graphics by more than 100 Houston architects and designers. At Lawndale Art Center. Call 713/348-4876 or visit www.rda.rice.edu.

Powerhouse: New Housing New York
New York City
Through June 16, 2007
This exhibition illuminates the people, projects, and public policies that fuel the affordable housing landscape in New York City, focusing on the New Housing New York Legacy Project (NHNY) competition. At the Center for Architecture. Call 212/683-0023 or visit www.aiany.org.

75 Years of Architecture at MoMA
New York City
Through June 18, 2007
MoMA's Department of Architecture, founded in 1932, was the world's first curatorial department dedicated to the discipline. This installation of drawings and models from the collection demonstrates the development of the department's collecting practice, with several recent acquisitions on view for the first time. At the Museum of Modern Art. Call 212/708-9400 or visit www.moma.org.

NY 150+: A Timeline: Ideas, Civic Institutions, and Futures
New York City
Through June 23, 2007
To commemorate the 150th anniversary of the founding of the American Institute of Architects in New York City, the AIA New York Chapter will feature an exhibition charting the transformation of the city and the profession from 1857 through the present and into the future. Genetic lines tracing the founding of the institute will intersect with various democratic and social movements and the architecture of New York's civic structures. Fifteen buildings and public spaces will be presented with a factual overview and commentary by architects, critics, journalists, authors, and others to illustrate the ideas that define the city's history as well as its future. At the Center for Architecture. For additional information, call 212/683-0023 or visit www.aiany.org.

The Green House: New Directions in Sustainable Architecture and Design
Washington, D.C.
Through June 24, 2007
This exhibition explores the building materials, consumer products, and energy systems that offer attractive and often affordable sources of the latest in home-building technology and products. The show includes a life-size replica of California architect Michelle Kaufmann's Glidehouse, an example of a Green Trend House



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that demonstrates sustainable principles. It also features models, photographs, and drawings of other contemporary projects around the world that show how sustainable principles are applied with innovation and beautiful results. At the National Building Museum. Call 202/272-2448 or visit www.nbm.org.

Open House:
Architecture and Technology for Intelligent Living
Los Angeles
Through July 1, 2007
This exhibition includes nearly 100 teams of emerging designers whose work focuses on technology and domestic architecture. The teams were invited to submit new designs that offer real-life solutions that incorporate the concepts of connectivity, well-being, flexibility, and sustainability. At Art Center College of Design's South Campus Wind Tunnel. Call 626/396-2380 or visit www.artcenter.edu.

2007 AIA New York Chapter Design Awards
New York City
Through July 7, 2007
A showcase of the 2007 award-winning projects in three categories: Architecture, Interiors, and Projects. At the Center for Architecture. Call 212/683-0023 or visit www.aiany.org.

George Yu Architects:
Honda Advanced Design Center
Los Angeles
Through July 8, 2007
This exhibition highlights the architects' transformation of a 6,000-square-foot retail space on the ground floor of a historic building into design studios and conference rooms using the same design technology as the carmaker for the new Honda Advanced Design Center. At SCI-Arc Library. Call 213/613-2200, ext. 328, or visit www.sciarc.edu.

Macro to Micro: Grimshaw in New York
New York City
Through July 8, 2007
The work of Grimshaw, including the Eden Project in Cornwall, England; Caxia Galicia in La Caruña, Spain; and Southern Cross Station in Melbourne, Australia, is well known. The *Macro to Micro* show will familiarize visitors with Grimshaw's growing body of work. Although its first completed projects are quite modest and just beginning to appear—bus shelters, newsstands, and automatic public toilets—much bigger things are well under way. The firm recently completed construction documents for the Fulton Street Transit Center in Lower Manhattan; it is designing an affordable housing complex in the South Bronx; and it has recently been hired to design an expansion of the museum presenting this show. At the Queens Museum of Art. Call 718/592-9700 or visit www.queensmuseum.org.

Devil in the White City Tour
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Lectures, Conferences, and Symposia

Fay Jones Celebration
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June 8–10, 2007
A three-day celebration to honor the legacy of Euine Fay Jones will offer a one-day symposium and two days of tours of his architecture, as well as projects he influenced. The symposium will include invited speakers sharing the legacy and creative genius of Jones. In addition, there will be an opportunity for all attendees to sign up to have a few minutes to share their own work. Call 404/237-8031 or visit www.kebyar.com.

45th International Making Cities Livable Conference on "True Urbanism: Designing for Social & Physical Health," and Exhibition on New Designs for Mixed-Use Urban Fabric
Portland, Ore.
June 10–14, 2007
An international conference for city officials, practitioners, and scholars in architecture, urban design, planning, landscape architecture, transportation planning, health policy, and social sciences. Participants will share ideas and establish working relationships. At the Governor Hotel. For more information, visit www.livablecities.org.

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Dates & Events

Eric R. Multhauf Lunchtime Lectures
Chicago
June 13, 2007
A lecture on "William Le Baron Jenney: Elder Statesman of the Chicago School," by Gerald Larson, associate professor of architecture, University of Cincinnati. At the Chicago Architecture Foundation. Call 312/922-3432 or visit www.architecture.org.

Mundaneum 2007
San Jose, Costa Rica
June 14–16, 2007
Mundaneum was the name given to one of Le Corbusier's projects for an eponymous educational world center aiming to serve a group of international organizations located in Geneva, Switzerland, in 1929. Although never built, the project triggered a theoretical argument between Corbusier and Czech critic Karel Teige. This conference brings together speakers on the topic of "rethinking architecture in the Americas," with utopian visions and nostalgia emerging in times of peace and collaboration during the postwar era. At Universidad del Diseño. Visit www.unidis.ac.cr.

Transparent Forum
Tampere, Finland
June 15–18, 2007
The guiding theme for the conference is green values, with the leading theme, "Kyoto Protocol and Architecture—What Can Glass Technology Do for All of Us?" Sessions will cover the following main categories: glass processing, glass in architecture, glass in automotive products, and changing markets. For more information, call 358/3 372-3216 or visit www.gpd.fi or www.glassfiles.com.

The 10th GPD Conference
2007 CSI Show
Baltimore
June 20–22, 2007
The Construction Specifications Institute (CSI) Show includes architects, specifiers, engineers, and contractors for the commercial building marketplace. It provides these professionals with the opportunity to market products to buyers and specifiers in the following industries: local and state government, education, residential, office buildings, and health care. At the Baltimore Convention Center. Visit www.thecsishow.com.

AIA150

AIA/Los Angeles Design Awards Gala
Los Angeles
June 21, 2007
This annual awards gala recognizes outstanding contributions to the field of architecture in Los Angeles. At the Beverly Hilton. Call 213/639-0777 or visit www.aialosangeles.org.

AIA150

Workshop for the 2006 Guidelines for Design and Construction of Health-Care Facilities
San Jose, Calif.
June 22–23, 2007
Designed for architects, engineers, facility managers, project managers, and contractors, this two-day program reviews codes and standards for health-care facilities, including changes and new material in Guidelines 2006, and features a lecture format with open forums and question-and-answer sessions. Visit www.aia.org.

Architecture Camp
Pittsburgh
June 25–August 17, 2007

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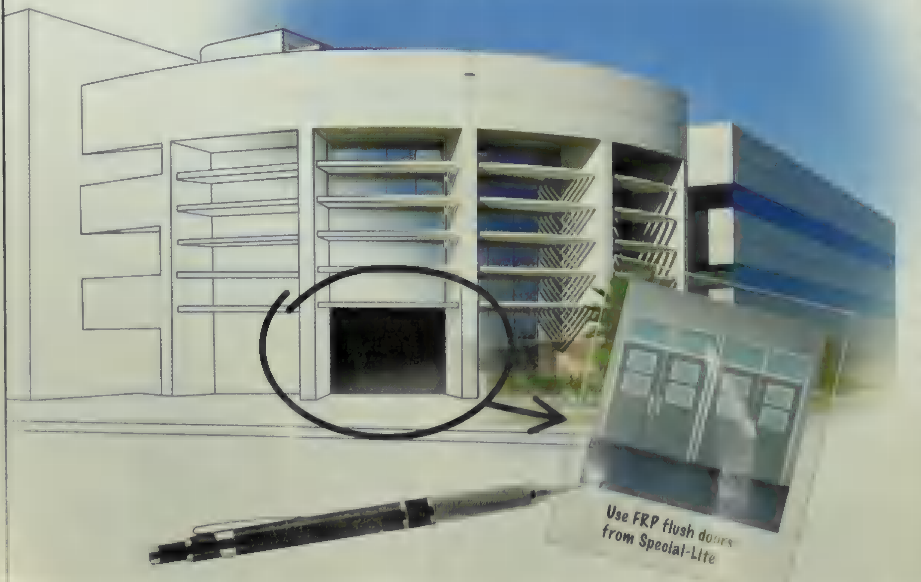
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Architecture Explorations, a series of one- and two-week camps dedicated to architectural design, construction, form, and function, and presented in collaboration with Carnegie Mellon University's School of Architecture, are available for children ages four to 13, as well as high school students. The architecture camps are held at Carnegie Mellon University's architecture studios and in the Carnegie Museum of Art's Heinz Architectural Center. Call 412/622-3131 or visit www.cmoa.org.

Competitions

Shrink This House

Deadline: June 15, 2007

This competition is open to all architects and architecture students. The winning entries will be published in the September-October issue of *Florida Insideout Magazine*. The program challenges the participants to take a 5,687-square-foot, two-story modern house going up in Miami Beach and, in expectation of high energy prices and an aging population in 2025, shrink it, creatively, to 2,000 square feet. Visit www.floridainsideout.com or call 305/532-7027.

Child's Play

Deadline: June 17, 2007

This competition focuses on children and asks designers to create an affordable object (or objects) that encourage children to cultivate their own imagination and creativity. The function is open to interpretation, and the objective of the design should be to encourage exploration and to inspire children to derive thier own associations and invent their own interaction or way of playing with the object. For more info, visit www.design21sdn.com.

Shelter Me

Deadline: June 17, 2007

In the past two years, widespread catastrophic events have called forth large-scale relief efforts throughout both urban and rural areas of the world. The Shelter Me competition challenges designers to present a cost-effective short-term shelter that is affordable, lightweight, strong, and easily deployed. Visit www.design21sdn.com.

21st International Excellence on the Waterfront Awards

Deadline: June 29, 2007

This program will honor waterfront projects, plans, citizen efforts, and student awards. Winners will be announced on November 2 during the "Urban Waterfronts 25: the Next Wave" conference at the Seaport Hotel in Boston. For program details and entry forms, call 202/337-0356 or visit www.waterfrontcenter.org

Kokuyo Design Award 2007 Call for Entries

Deadline: June 30, 2007

Adaptable designs of any product used daily either at home or in the work place may be submitted. Visit www.kokuyo.co.jp.

Design Trust for Public Space Call for Proposals

Deadline: July 27, 2007

New York City community groups and public agencies are invited to submit proposals for research, design, and planning projects that would benefit from private-sector expertise. Proposals must relate to the design or use of public space in the five boroughs of New York City. For more information visit www.designtrust.org.

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Dates & Events

Design Competition

Deadline: November 5, 2007

Developed for advanced students, this competition will challenge participants to design a pediatric outpatient rehabilitation center and family support facility utilizing architectural aluminum building products and systems. For more information, visit www.aias.org/kawneer.

Palladio Awards

Deadline: November 15, 2007

The Palladio Awards are named in honor of Andrea Palladio, the Renaissance architect who created modern architecture for his time while using models from the past. The program recognizes individual designers and/or design teams whose work enhances the beauty and humane qualities of the built environment through creative interpretation or adaptation of design principles developed through 2,500 years of the Western architectural tradition. Call 718/636-0788 or visit www.palladioawards.com.

Just Jerusalem

Deadline: December 31, 2007

This competition invites participants worldwide to submit urban plans and other creative works that consider novel ways to transform this fractious city into a place where contending ideas and citizenries coexist in peaceful ways. An international panel of diplomats, researchers, and professionals will jury the competition. The winning participants will be awarded fellowships at MIT, a prize equivalent to $50,000. Visit www.mit.edu/cis/jerusalem2050/.

Fourth Annual Extreme Redesign: The Ultimate 3D Printing Challenge

Deadline: December 31, 2007

A global design and 3D printing contest for high school and college students that awards scholarships to the winners. To enter the engineering categories, students need to identify an existing product and redesign it, making the original design better by adding new functionality or aesthetic qualities. For submissions in the art and architecture category, the emphasis should be on originality and the overall beauty or aesthetic of the design. Visit www.dimensionprinting.com.

Project New Orleans Call for Submissions

Ongoing

Project New Orleans is seeking to compile a record of all architectural and planning proposals created for the post-Katrina rebuilding of New Orleans. Submissions for proposals are welcome, both written and graphic, from the architectural to the regional, and from all engaged in thinking about the future of the city in physical terms. Visit www.project-neworleans.org.

Open Architecture Prize

Deadline: Ongoing

The $250,000 Open Architecture Prize is the largest prize in the field of architecture and is designed to be a multiyear program. Each year, a winning design will be selected from a field of low-cost, sustainable projects and built in a selected community. The first project will be an "e-community center," a centralized building equipped to enable an entire community to access the Internet. The winning designs will be built as part of the prize and in alignment with the 50x15 Initiative, a program founded to connect 50 percent of the world's population to the Internet by 2015. To learn more, visit www.50x15.com.

E-mail event and competition information two months in advance to elisabeth_broome@mcgraw-hill.com.

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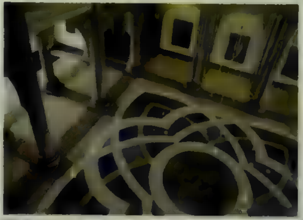

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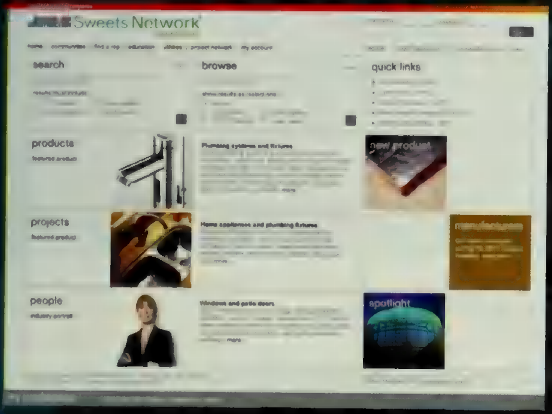

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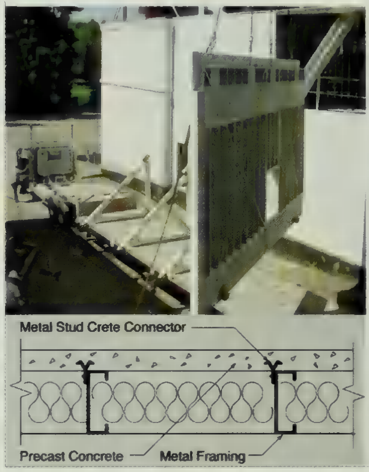

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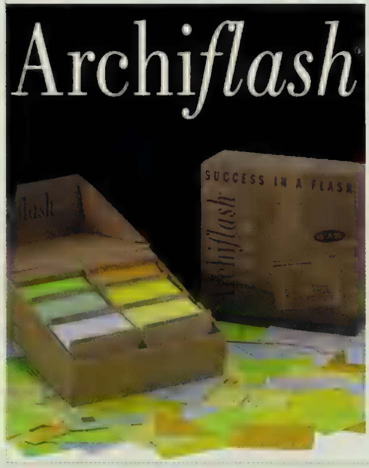

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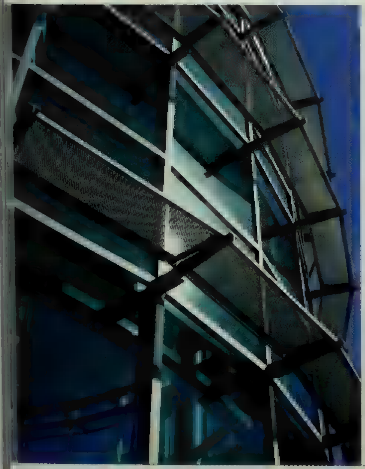

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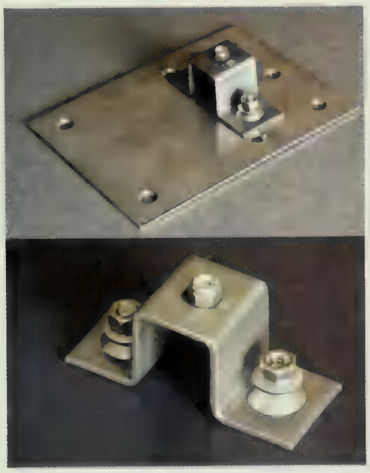

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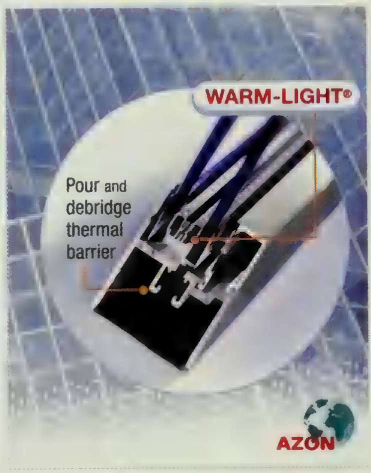
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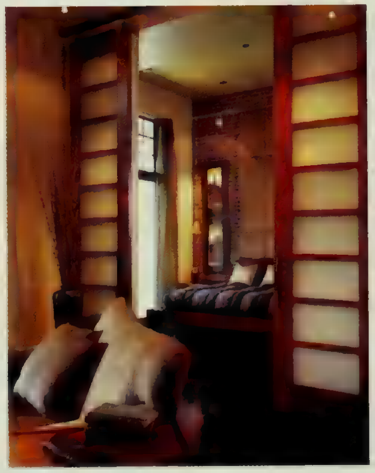

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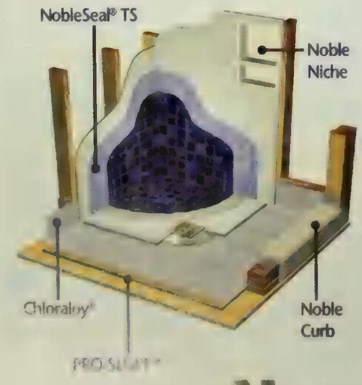

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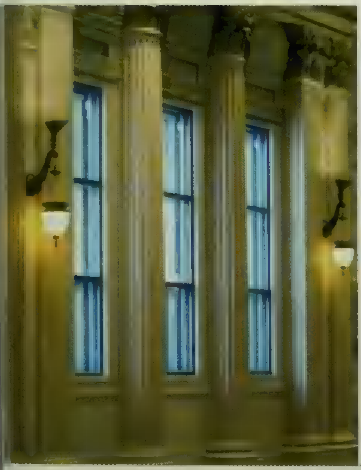
Make a statement with sliding doors. Wide selection of styles, sizes and finishes. Enhance any office, loft, condo or home with hardware that can transform a room. Wide selection of choices for exterior applications as well. From rustic to contemporary and from sliding to folding, their friendly, knowledgeable staff has your solution. For old-fashioned service give them a call at 866-815-8151.

866-815-8151
www.barndoorhardware.com

| Circle Reader Service #172

Special Purpose Doors & Windows

Krieger Specialty Products



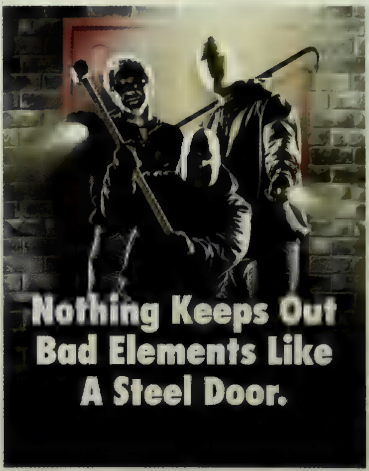
Krieger doors and windows can be manufactured for various sizes and performance requirements, including acoustical, bullet resistance, blast resistance, thermal protection, radio frequency shielding and hybrid combinations. Various finish and hardware options are available, and frames can be custom made to fit any wall configuration.

800-251-5256
www.KriegerProducts.com

| Circle Reader Service #170

Steel Doors & Frames

Steel Door Institute



For strength and security there's nothing like a steel door. The Steel Door Institute sets standards for the performance, care and use of steel doors and frames. The SDI Fact File is the only resource you need to ensure that the steel doors and frames you choose meet the highest standards of all—yours. Request a copy of the SDI Fact File at www.steeldoor.org.

440-899-0010
www.steeldoor.org.

| Circle Reader Service #173

3-Way Adjustable Heavy Duty Concealed Hinge

Sugatsune America, Inc.

Manufacturer of commercial and residential hardware, Sugatsune has released new 3-Way-Adjustable Hinge, HES3D-190. This hidden hinge provides flush surface, adding clean appearance to the design. Maximum door weight (110-lb./2 pieces) and door size (H94-31/64-in.x W35-7/16-in.). Available in 2 finishes, matte silver or matte gold. Hinge allows vertical, horizontal and depth adjustment, even after installation. Successfully passed 500,000 open/close private cycle test.

800-562-5267
www.sugatsune.com

| Circle Reader Service #174

Surface Mounted Niches

Architectural Products by Outwater, LLC

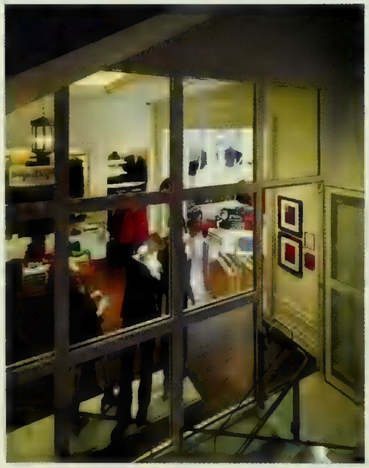
Every bit as simple as hanging a picture, Architectural Products by Outwater's high-density polyurethane Surface Mounted Niches not only transform ordinary, unembellished walls into elegantly appointed, dramatic 3D focal points, unlike recessed niches, they can be readily installed by anyone without ever having to cut a hole in the wall. Comprising two "Keyhole" recesses embedded on its back surface, Outwater's lightweight yet strong Surface Mounted Niches can be mounted, or perhaps, more appropriately, hung utilizing traditional picture hanging hardware and techniques. Free 1,100+ Page Master Catalog!

800-835-4400
www.outwater.com

| Circle Reader Service #177

Fire-Rated Glass & Framing

Technical Glass Products



Imagine full lite glass doors that give the same fire protection as solid steel. TGP offers a complete system of Pilkington Pyrostop® glass in narrow profile Fireframes® framing. Complement the door with a matching transom and sidelites, fire-rated up to two hours. Framing comes factory-finished to your specifications, ready to install. Give your customers the look they want without compromising safety.

800-426-0279
www.fireglass.com

| Circle Reader Service #175

Decorative Wall Panels

Crane Composites, Inc. (formerly Kemlite Company, Inc.)

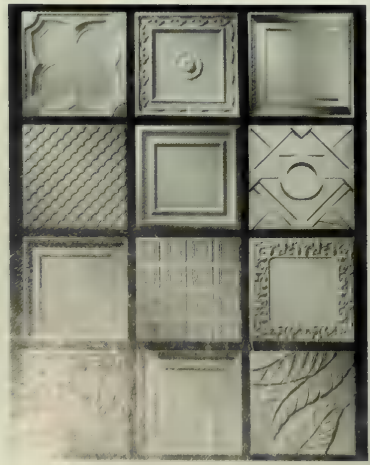
frpDesign Solutions is a family of decorative wall panels that provides an alternative to traditional wall coverings such as ceramic tile, wood paneling or vinyl wall coverings. Offering both functionality and design, products in the frpDesign Solutions line are made of a moisture-resistant frp panel with a decorative finish that includes myriad colors, patterns, and woodgrains, as well as a tile-look panel. Available with over 500 choices, frpDesign Solutions is easy to install and maintain. For more information, visit Kemlite on the web.

800-435-0800
www.frpdesignsolutions.com
CSI Booth #618

| Circle Reader Service #178

Ornamental Plaster Ceiling Tiles

Above View Mfg., By Tiles, Inc.



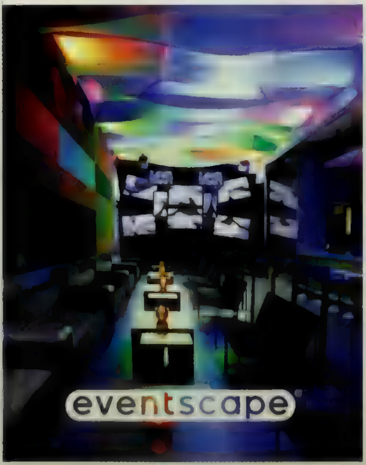
Above View ornamental plaster ceiling tiles are fabricated from a non-toxic, non-combustible, proprietary composition. They drop into any standard 15/16-in. T-Bar grid system. There are more than 50 standard designs, custom design work, and 1,300 custom colors and faux finishes available upon request.

414-744-7118
www.aboveview.com

| Circle Reader Service #176

Custom Ceiling Solutions

Eventscape Inc.



Eventscape manufactured the flowing, framed fabric ceiling panels that expand the spectrum of mood and atmosphere in this upscale restaurant complex in Miami. They work with designers worldwide to create unique solutions for ceilings, columns, walls, and special features, clad in any material. Contact them at info@eventscape.net "Create without boundaries."™

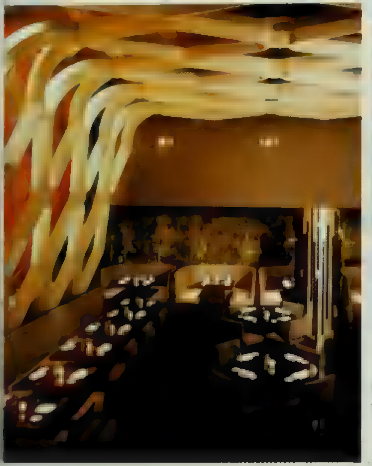
416-231-8855
www.eventscape.net

| Circle Reader Service #179

TO ADVERTISE: Contact Deidre Allen
T: (212) 904-2010 / F: (609) 426-7136
deidre_allen@McGraw-Hill.com

Custom Molded Architectural Shapes

Formglas



Custom molded architectural shapes by Formglas expand design opportunities for interiors and exteriors. Lightweight and durable GRG and GRC components are cast in an endless array of shapes, textures and color finishes. Their team of trained professionals work with you to find practical and easy to install solutions that enhance aesthetic appeal. Email info-ar3@formglas.com

416-635-8030
www.formglas.com

| Circle Reader Service #180

Pre-Engineered Door Hardware

HDI Railings

From minimalist simplicity to stylish sophistication, HDI offers pull handles to suit every taste. Featuring nearly 60 distinct designs made from stainless steel, wood, glass and stone, you're sure to find a solution to your need. Many pull handles come in a variety of sizes, and the HEWI CombiSystem features a patented method of adjustment, allowing easy installation on existing doors.

717-285-4088
www.hdirailings.com

| Circle Reader Service #183

Floor System

Gage Corporation, Int.

The Gage Stainless Steel Floor System is a durable, high-tech flooring solution designed and manufactured in Italy for purity of form and ease of installation. The embossed stainless steel and black organic finishes have been designed to prevent traffic wear and are virtually indestructible.

800-786-4243
www.gageverticalsurfacing.com

| Circle Reader Service #181

Green Roof Systems

Homasote Company

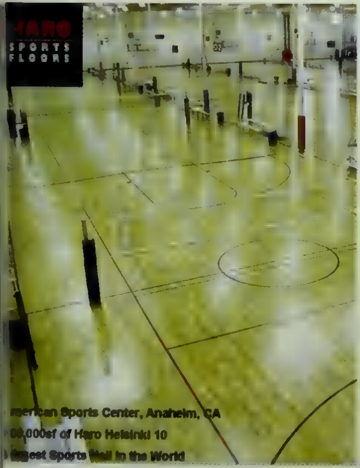
Homasote Company, one of America's leading green building products manufacturers and nailbase roof insulation's originator, has received Factory Mutual approval for N.C.F.R.® Thermasote® on steel roof decks. Use it to specify attractive, residential-looking roofs for multi-family, mixed-use, commercial, medical and other construction. For an alternative green roof system, excellent for conventional and LEED® construction, specify Firestall® Roof Deck with N.C.F.R. Thermasote. Wind uplift tests show these Homasote® systems make code in wind-prone areas.

800-257-9491 ext. 1211
www.homasote.com/thermasote

| Circle Reader Service #184

Sports Floors

Haro Sports Floors


HARO
SPORTS FLOORS
erican Sports Center, Anaheim, CA
00,000sf of Haro Helsinki 10
gest Sports Wall in the World

Athletes shouldn't suffer through injuries due to a poor performing sports floor. Athletic Floor Systems provides the best performing, safest and lowest cost gymnasium floors available. AFS supplies sports floors for competition gyms, sports arenas and multi-purpose facilities. There are more than 7500+ installations in over 65 countries. Demand performance, safety and low cost in your next sports floor.

800-323-6792
www.haro-usa.com

| Circle Reader Service #182

Color System

ICI Paints Dulux

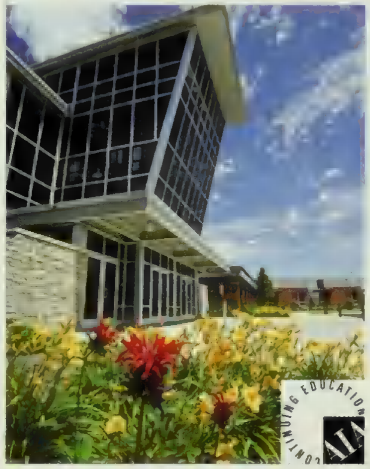
The new Dulux® Color System contains easy-to-use color tools designed to make color selection simpler. The Dulux Fan Deck is arranged by hue for ease in locating color and provides a 50% larger color swatch than other fan decks. The new color palette incorporates the most popular, frequently specified colors plus over 1,000 emerging trend colors. The palette's colors were chosen by an international team of color experts and designers to coincide with the deeper, more intense colors and decorative accents now used in the global marketplace.

800-432-8678
www.duluxpaints.com/color

| Circle Reader Service #185

Expand Your Architectural Options

Linetec



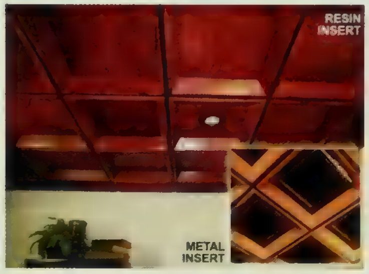
Linetec, a Kynar 500/Hylar 5000 paint, anodize and powder coat finisher offers "Introduction to Coatings: Field Performance and the Application Process" as a registered online learning program to help you attain your AIA Continuing Education credits. This presentation is available on-demand from Linetec's Architect Resource Center located on their web site at www.linetec.com.

888-717-1472
www.linetec.com

Circle Reader Service [illegible]

Simple Coffered Ceilings

M-Boss Inc.



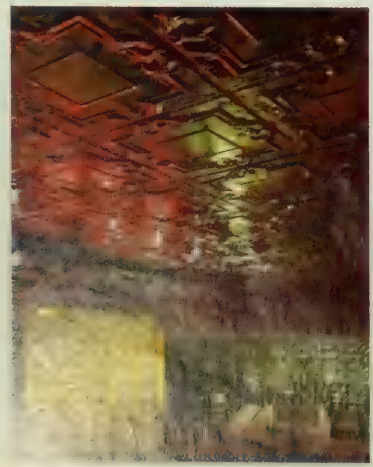
The stately elegance of coffered ceilings is now easy to duplicate using any standard grid system. M-Boss Inc. coffered ceilings are lightweight and customizable using three types of inserts: pressed metal, resin, or opaque acrylic. Coffers will not crack, split or rot; cut like wood; and can be painted or stained.

877-29 M-Boss (877-296-2677)
www.mbossinc.com

Circle Reader Service #187

Authentic Tin Products

The American Tin Ceiling Company



The nation's largest manufacturer and direct shipper of tin ceiling products offering over 55 powdercoat finishes in 32 patterns. Exclusive distributors of the innovative SnapLock and 3D Drop-in tin ceiling panel systems. Eight designers available for free design consultation. Orders shipped direct worldwide. Lowest price guaranteed for finished tin ceiling panels.

888-231-7500
www.americantinceilings.com

Circle Reader Service [illegible]

Tiles

Viva Ceramica

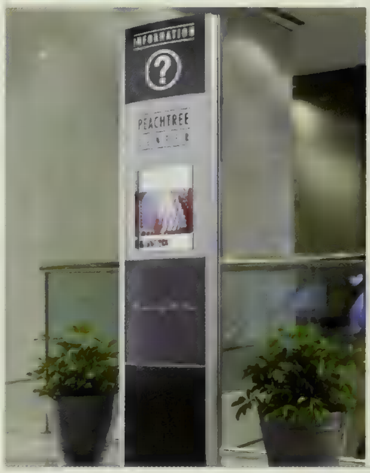
On our 1cm thick Backstage tiles, available in the 60x90cm and 30x90cm sizes, we fused 2 µm of metal onto the through-bodied porcelain slab. The resulting metalized glaze was then colored before we honed it to reveal totally unexpected metallic effects in green/yellow, red/orange, red/white and blue/black. All this as well as a really natural looking surface all set for the challenges of wear and tear and aging in a completely new way. Ideal for private homes and bathrooms, Backstage can also be used to great effect by interior designers in decorating ultra-modern stores.

www.cerviva.it

Circle Reader Service #190

Freestanding Directory/Information Station

APCO Sign Systems



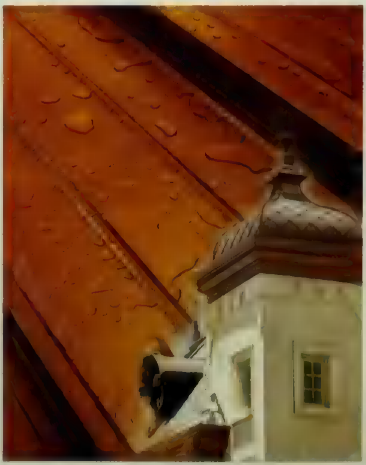
APCO is pleased to offer the Arcadia 3-Sided Totem, an exciting addition to the popular Arcadia sign system. The Arcadia Totem can be customized to include illuminated or non-illuminated directories, directional information, interactive or non-interactive digital displays, maps, advertising, posters, and brochure holders. Available in three standard widths and various heights, the Arcadia Totem is well-engineered, design flexible and will surely enhance the image of any environment. For more information, please call APCO or visit their website.

877-988-APCO
www.apcosigns.com

Circle Reader Service #191

Architectural Sheetmetal Products

CopperCraft



Structural integrity and performance are as important as aesthetics. Applying this understanding to the manufacture of its products is what sets CopperCraft apart from the competition. Their design, engineering, testing, and fabrication methods meet stringent structural and performance standards. You get unsurpassed quality, delivery, and custom service including a nationwide network of representatives. Their complete line of high quality architectural sheetmetal products include ornamental dormers, roof vents, roof drainage products, conductor heads, steeples, cupolas, and spires.

800-486-2723
www.coppercraft.com

Circle Reader Service #192

TO ADVERTISE: Contact Deidre Allen
T: (212) 904-2010 / F: (609) 426-7136
deidre_allen@McGraw-Hill.com

Sign Systems with Clear Message Panels

Kroy Sign Systems

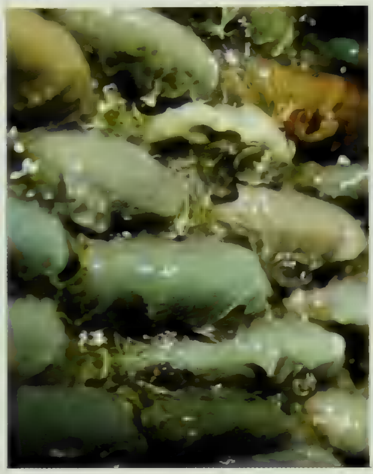
Introducing the Advantage Sign System featuring satin aluminum sign posts and a clear ADA compliant message panel with raised text and Grade II Braille. Panels may be presented with a variety of background designs and textures such as wood and metal laminates. Or color photographs. Removable clear inserts offer easy and inexpensive sign updates. Installation options include wall mount, projection mount and suspended overhead mount. Flexibility makes Kroy Sign Systems the clear advantage.

800-950-5769
www.kroysignsystems.com

Circle Reader Service #193

Architectural Surfaces

SOLI



SOLI offers one-of-a-kind architectural surfaces for traditional and contemporary applications. From metal to marble, granite to glass, SOLI products bring distinctive design to floors and walls, indoors and out. They also offer a variety of unique porphyry, cobblestones and pavers. View their extensive collection of innovative tile and natural stone at www.soliusa.com.

800-410-7654
www.soliusa.com

Circle Reader Service [illegible]

Surface Protection

PERMA-CRETE®

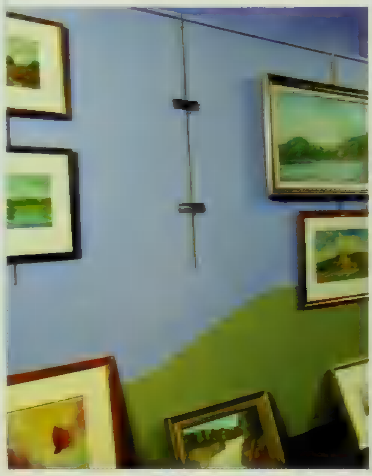
ICC approved PERMA•CRETE® surfaces provide architectural, load-bearing strengths of over 6,000 PSI compressive strength, and are sealed, nonporous, and chemically resistant to solvents, stains, temperatures and UV rays. The products can be applied over most surfaces including building exteriors, driveways, sidewalks, bridge decks and pool interiors. PERMA•CRETE® renews instead of removes, enhances property values, and is a cost-effective way of eliminating surface deterioration and costly maintenance.

800-607-3762
www.permacrete.com

Circle Reader Service [illegible]

Art Presentation

Walker Display Incorporated



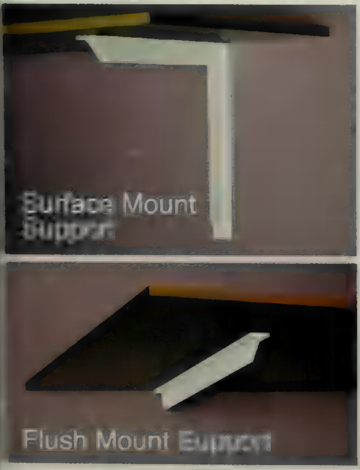
Life's all about change and so is Walker Display when it comes to art presentation. The Walker system frees you to explore all your options. No-More-Holes frees you to rearrange your artwork with ease and speed. Embrace change.

800-234-7614
www.walkerdisplay.com

Circle Reader Service #197

Counter Support Brackets

Rangine Corporation / Rakks



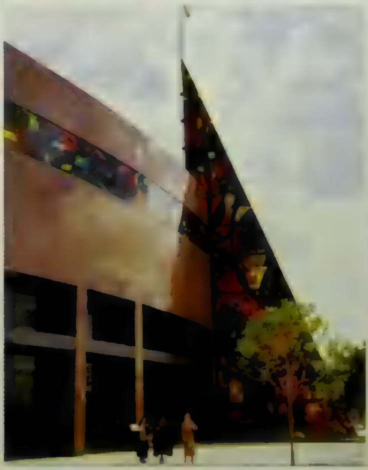
Rangine Corporation's counter support brackets provide an easy-to-install alternative to full-height laminated panels. Available in a range of sizes to support counters up to 30-in.-deep, brackets install easily into studs or blocking and can support loads up to 450-lb. Less expensive than laminated supports, they increase open space while improving handicapped access and ergonomics. Brackets can be ordered in either surface or flush mounted configurations to provide heavy-duty unobtrusive support. Manufactured of extruded structural aluminum.

800-826-6006
www.rakks.com

Circle Reader Service #195

Stained Glass Meets Codes

Bovard Studio Inc.



Bovard Studio Inc. Stained Glass has developed a proprietary process for laminating stained glass onto large panels of 1/2-in. laminated tempered glass to meet hurricane and earthquake codes. Pictured: West Angeles Cathedral's 108-ft.-high stained glass tower with its 652-ft.-long by 8 ft.-high stained glass clerestory band. Bovard Studio specializes in new stained glass windows, historic stained glass restoration and replication, recreating historic wood and metal frames, and new glazing systems designed for the preservation of stained glass windows.

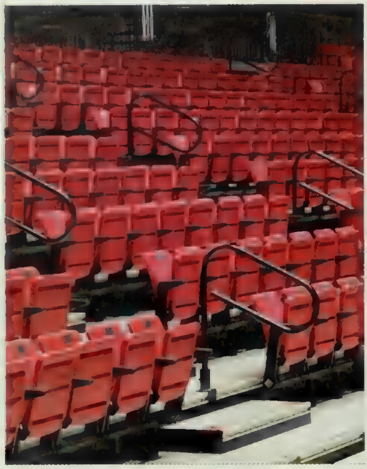
800-452-7796
www.bovardstudio.com

Circle Reader Service [illegible]

ICLE ■ ON READER SERVICE CARD OR GO TO HTTP://ARCHRECORD.CONSTRUCTION.COM/READERSERVICE/READERSERVICE.ASPX

Retractable Chair Seating

Irwin Telescopic Seating Company



As the use of retractable chair seating continues to grow, Irwin Telescopic Seating Company continues to expand their seating and design options. This type of seating is being used in sporting venues, education facilities, theaters, churches and corporate training facilities. They offer blow molded plastic seating, with or without upholstery, or the very comfortable and attractive auditorium style chair (featured photograph). In addition, a large variety of fabrics, finishes and powder coat options are available. Call or visit their web site for complete product information.

877-597-1122
www.irwintelescopicseating.com

| Circle Reader Service #199

Saunas

Finlandia Sauna Products, Inc.

Finlandia Sauna has manufactured exclusive and authentic saunas (no infrareds) since 1964. Finlandia offers precut sauna packages and modular sauna rooms as an affordable luxury that can be included in any remodel or new construction. The company markets four all-clear western softwoods and is the only manufacturer to use 1-in. by 4-in. paneling, instead of the cheaper 1/2-in. by 4-in. material used by others. The complete package includes a choice of electric sauna heater with optional AV EverReady, the exclusive new energy saving heater which is always on—no heat up necessary.

800-354-3342
www.finlandiasauna.com

| Circle Reader Service #283

Clean-Lined Outdoor Furniture

Modern Outdoor

Premier provider, designer, and manufacturer of high-style, clean-lined, environmentally conscious outdoor furniture that is still made here in America. They offer four complete lines of furniture engineered for use in heavy commercial applications with the aesthetics for residential environments. Their lines include chairs, tables, benches, settees, stools, club chairs, sofas, ottomans, loungers, planters, bar carts, accent tables, and bar height products. They also offer custom work as pictured here with this communal table. Contact: t. 818-785-0171, f. 818-785-0168, info@modernoutdoor.com or visit www.modernoutdoor.com.

818-785-0171
www.modernoutdoor.com

| Circle Reader Service #281

Electric Radiant Heating Cable

Orbit Radiant Heating

Orbit Radiant Heating specializes in maintenance-free electric radiant heating systems that feature Nexans TXLP heating cable. Manufactured in Norway, the cable is designed to withstand the rigors of harsh outdoor use for snow- and ice-melting. The integrated sensors and controls along with specific application design assure the lowest first and operational cost and maximum safety. Indoors, designers prefer Orbit systems because they operate silently, are non-allergenic, safe, and require no boiler capacity or mechanical room space.

800-522-3986
www.orbitmfg.com

| Circle Reader Service #284

Eco-Friendly Filing & Storage

Aurora by Richards-Wilcox

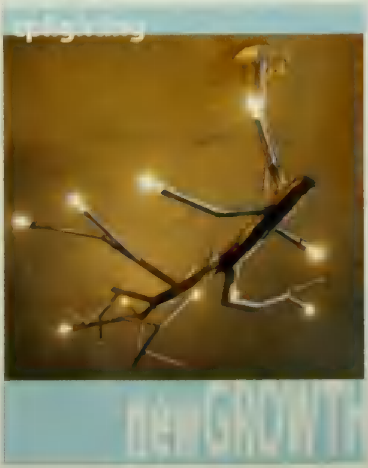
Times-2 provides versatile, dual-sided storage in a locking cabinet that rotates. Multiple units can be used as room dividers for shared storage. A variety of accessories accommodate all types of office storage and filing. Choose from different heights and twenty-nine colors in the eco-friendly Gloss-Tek™ finish. Call 800-877-8456, or visit at www.aurorastorage.com.

800-877-8456
www.aurorastorage.com

| Circle Reader Service #282

Custom Light Fixtures

CP Lighting



CPLIGHTING introduces the newGROWTH chandelier. Custom fabricated from brushed aluminum, these UL listed fixtures are a modern sculptural interpretation of fallen branches. Like real trees, no two newGROWTH fixtures are ever alike. Each fixture is built to suit your specific project needs utilizing line-voltage type JCD halogen bulbs. Please visit their web site to see their complete line of modern light fixtures designed by Christopher Poehlmann including their recycled acrylic Popsicle Pendant series.

866-597-4800
www.cplighting.com

| Circle Reader Service #285

Large Lighting for Large Spaces

Engineered Lighting Products

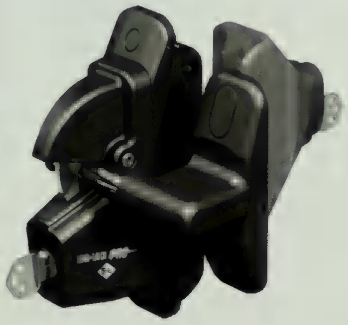
These extruded, A15 fixtures are 7-1/4-in. by 25-5/8-in. by 28-in. They tilt for precise aiming of the asymmetric beam and can be secured in place. Interior and exterior wet location styles are available in one or two lamp configurations for Metal Halide, HPS or Fluorescent models. Fax number 626-579-6803 Email elp2@aol.com

626-579-0943
www.elplighting.com

| Circle Reader Service [illegible]

Self-Locking Gate Latch

D&D Technologies



Lokk-Latch PRO®—SL provides self-locking and self-latching security in a latch that won't rust, is horizontally and vertically adjustable, and features a 6-pin re-keyable lock. Formed of super-strong engineering polymers with stainless steel components, it fits metal, wood and vinyl gates. A key is required to enter and exit (institutional function). Only one hole is drilled to connect the internal and external units. The latch fits posts up to 6-in., and comes with a limited lifetime warranty.

714-677-1300
www.ddtechglobal.com

| Circle Reader Service [illegible]

Architectural Ceiling Fans & Lighting

G Squared Art

Balanced design that is light and airy. Moving sculpture. The San Francisco ceiling fan—a GOOD DESIGN Award winner. Whisper quiet, powerful, reliable and beautifully made this timeless design is also available with a light kit and can be used on 8-ft. ceilings or on cathedral ceilings with optional downrods up to 6-ft. long. Suitable for sloped ceilings up to 29 degrees. Lifetime warranty. To buy high-design architectural fans and lighting please visit G Squared Art's web site or call them M-F 7 a.m. to 5 p.m. PST.

877-858-5333
www.g2art.com

| Circle Reader Service [illegible]

European Cobblestone

Eurocobble

An updated catalog features authentic European cobblestone preassembled in modular form. Modules in square, fan, concentric ring, and custom formats arrive at the job site ready for a quick and easy installation. Pedestrian or vehicular application. Eurocobble® has supplied the design community with traditional and customized paving solutions for over 20 years. Call toll free or visit the web site.

877-877-5012
www.eurocobble.com

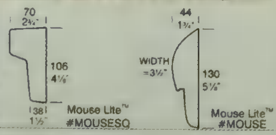
| Circle Reader Service [illegible]

Surface-Mount Outdoor Light

Hunza Lighting USA

The Hunza Mouse Lite is a true surface-mount outdoor luminaire that is ideal for situations where a recessed fixture is not practical. Available in solid bronze, stainless steel or square profile, the Mouse is a versatile option for steps, decks, posts and many other applications.

HUNZA
LANDSCAPE
LIGHTING

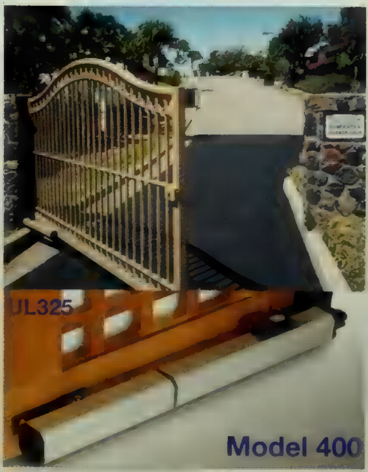


310-560-7310
www.hunzausa.com

| Circle Reader Service #288

Perfect for Gated Communities

FAAC International, Inc.



FAAC is the world's largest specialized manufacturer of operators for swing, slide and barrier gate systems. The Model 400 heavy-duty hydraulic swing gate operator is UL 325 compliant and designed for applications needing maximum versatility, such as subdivisions and apartments. Its power and reliability also make it ideal for large, ornate gates. Visit www.faacusa.com.

800-221-8278
www.faacusa.com

| Circle Reader Service #291

POSITIONS VACANT

MECANOO, a high profile architecture firm located in Delft, The Netherlands, is seeking motivated architects with 2-3 years of full-time professional experience. The firm is currently working on a wide range of prestigious projects in Europe and Asia. Ideal applicants will be extremely self-motivated, highly curious and have the ability to think and work on multiple projects at once. We are an office in the atelier style where each individual is involved in all aspects of design and construction.

Since Mecanoo will start working mid-year on very prestigious projects in Taiwan and Korea, work experience in the specific field of operation in Taiwan or Korea is crucial. Fluency in Mandarin or Korean is essential.

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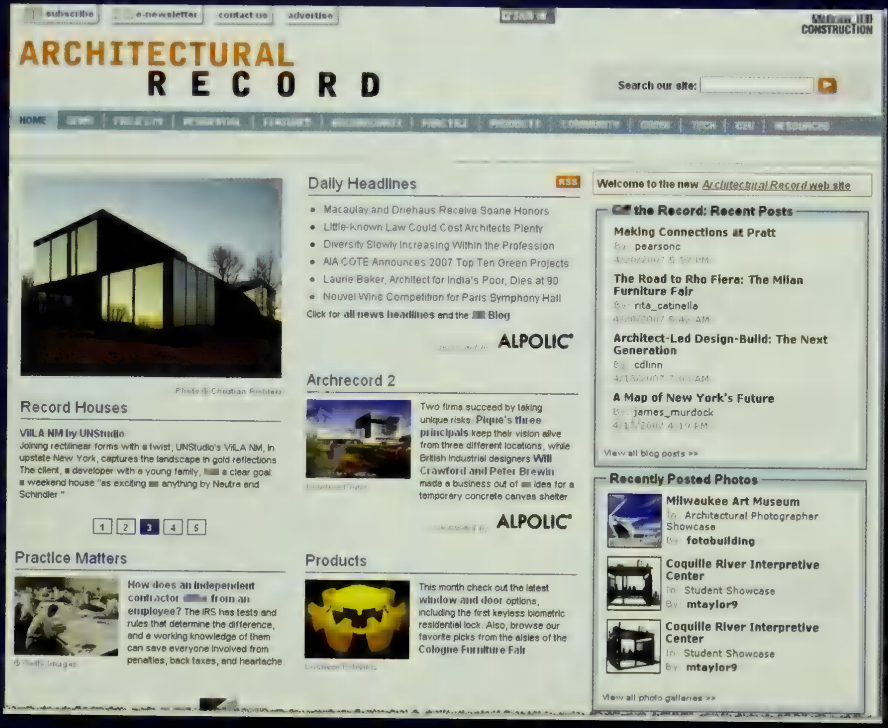

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The Architect's Hand

Antoine Predock's vivid journeys

While traveling abroad by motorcycle in the 1960s, architect Antoine Predock carried only the "bare essentials," which he says included a sketchbook and India ink, but no technical pens. Instead, he drew with objects he found on-site: "Feathers, twigs, or popsicle sticks sharpened with a knife—whatever was there," he recalls. Having studied painting at the University of New Mexico with Abstract Expressionists such as Elaine de Kooning, Predock embraces drawing as a visceral gestural act, conveying the spirit of a place, rather than an analysis of it. As his journeys evolved, he discovered the brush pen, which he takes along, often with pastels. Sometimes he depicts an iconic building over and over, each time quickly to capture its essence, as he did in 1985 with the Pantheon and Trinità dei Monti during his fellowship at the American Academy in Rome. His sketchbooks from that period include what he calls a "90-second drawing" of Venice, done with oil pastels and brush pen, from a boat, "on one of those days when water and sky dissolve into one another." In San Leo, Italy, he portrayed a mountaintop fortress as "geology and color morphing into architecture—one of my obsessions," he says. Back in Rome, at the Baths of Caracalla, he was again taken with evocative ambiguity; there, between natural rock formations and fragments of ancient buildings, integrated without preciousness into everyday life. Though some of the sketches appear loose, lyrical, almost calligraphic, others are densely scratched (or later layered into collages with local currency, postcards, etc.). But beyond differences in materials or the character of the line, these gestural images are each about direct, unmediated immersion in a particular time and place. *Sarah Amelar*

Clockwise from top left: *Baths of Caracalla, Rome; San Leo, Italy; Trinità dei Monti, Rome; Venice* (varied media, 1985).

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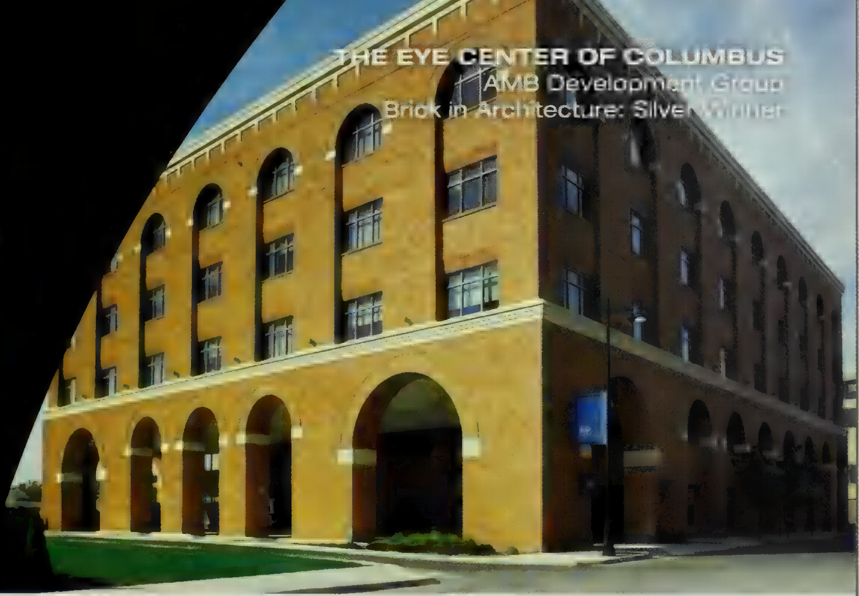

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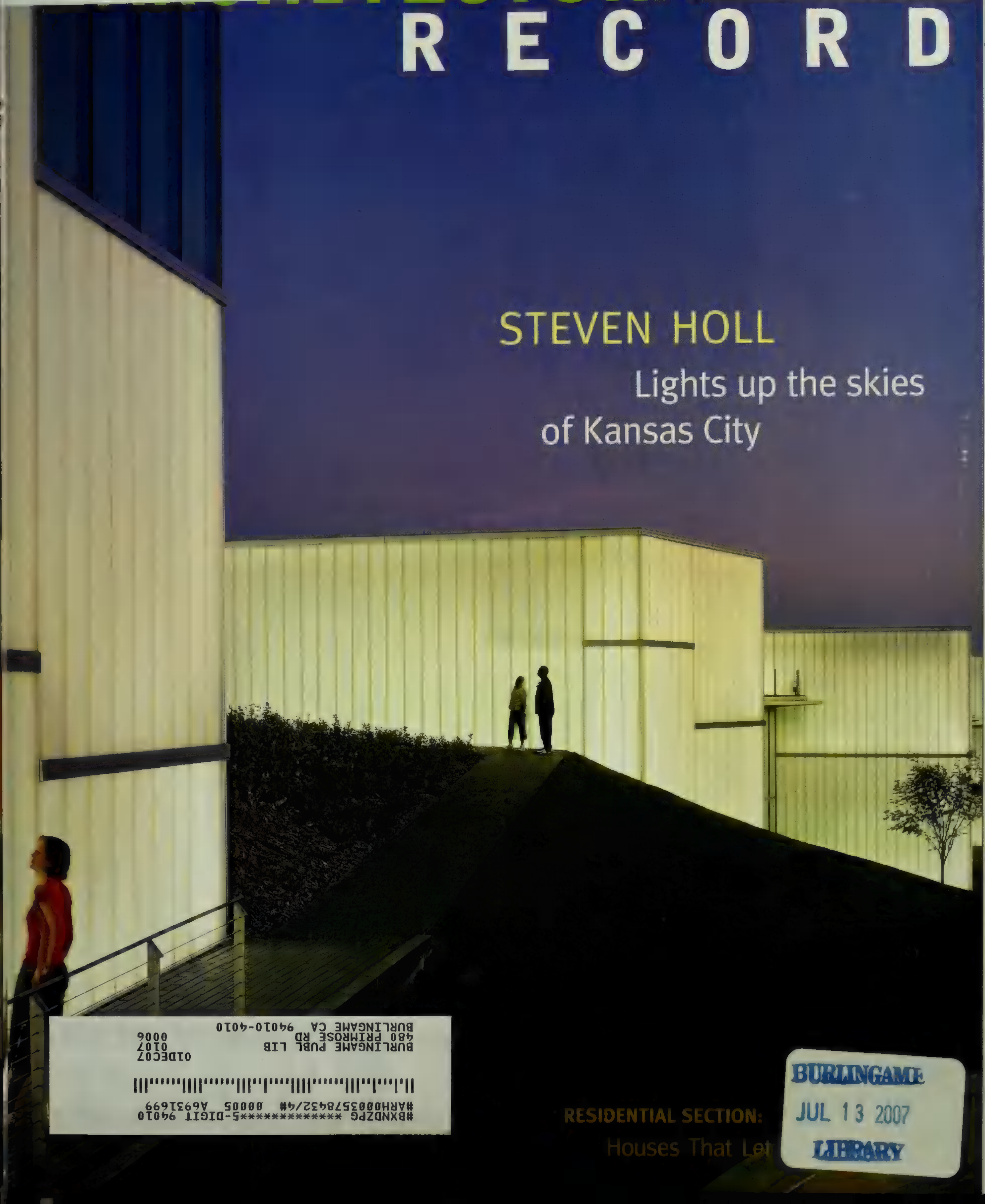

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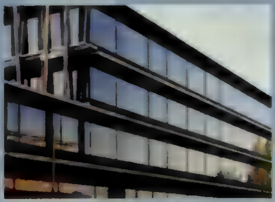

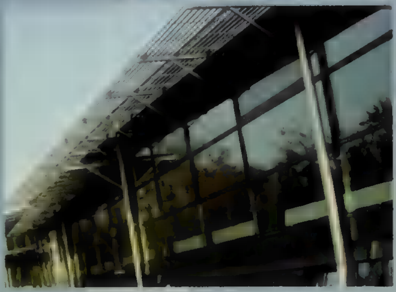

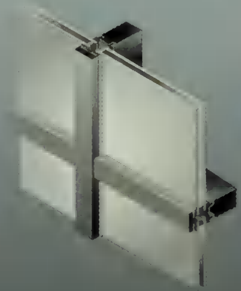

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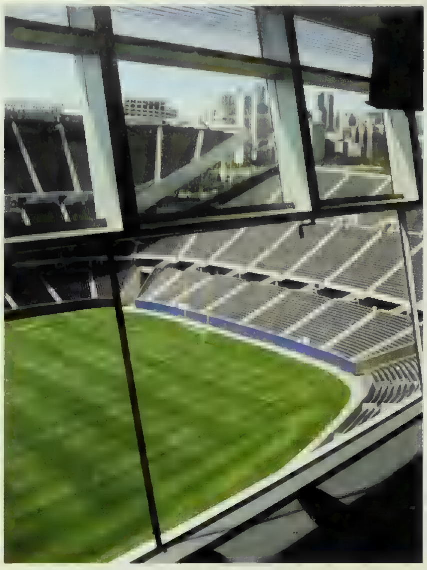

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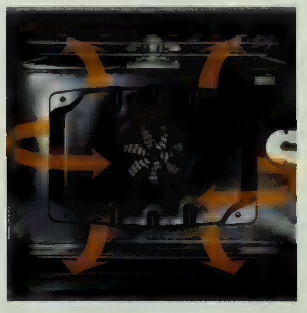
The demand for sophisticated design has quickly become one of the defining movements of early 21st-century consumer culture. Celebrity designers such as Frank Gehry, references to elite luxury brands in song lyrics, and the advertising campaigns of brands such as Apple have made the aesthetics of design part of the public lexicon. As a result, today's consumers are looking for products with a renewed focus on design, affecting everything from vacuum cleaners to automobiles. As a pioneer in creating new breakthroughs throughout its history, Thermador is leading the way in this movement, as well as redefining classic American design with the introduction of their Masterpiece Series ovens.

The Masterpiece Series features a chiseled facade with sharp angles, bringing a bold, dimensional aspect to oven design that makes a statement of sophistication in today's contemporary kitchen. This design elevates the oven from mere appliance to coveted centerpiece, making it the focal point of any culinary space. And like every Thermador before it, this oven boasts an array of advanced features that make its performance as impressive as its design.

The oven's roster of features is designed to empower busy individuals wishing to create high-quality meals by making every aspect of oven use easier, faster and more efficient. Take the CookSmart® function for example. In the DM-Series, this program automatically calculates and converts traditional recipe cooking temperatures and times for use with the fast convection mode, so users can easily prepare their favorite recipes in a fraction of the time.

Another advanced feature designed to improve cooking efficiency is True Convection, which employs six vents in conjunction with a third heating element to deliver superior hot air circulation in convection mode. The result—dishes cooked far more evenly than those prepared in traditional convection systems.

The Masterpiece Series pays tribute to excellence in American design with numerous convenience features that make life easier for busy home chefs. The massive oven cavity will accommodate even the largest dishes and is lit by a powerful halogen lighting system for unmatched illumination. Its unique design also enhances its functionality, as cooks enjoy excellent visibility of their creations through the oversized viewing window. The six-way adjustable oven racks offer numerous options for precise food positioning as well as the ability to heat multiple items at once, while advanced third-element convection virtually eliminates flavor transfer between foods.



True Convection

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Massive Capacity

For those who want to start cooking the minute they get home, the True Convection mode's lightning-fast preheat comes to the rescue, heating the oven to 325°F in just seven minutes—the industry's best. The Masterpiece Series is available in five different configurations and sizes, giving homeowners the flexibility to select the exact model to suit their particular needs.

If you're looking for a built-in oven that delivers a cutting-edge design aesthetic, along with state-of-the-art features and exceptional cooking performance, look no further than the Thermador Masterpiece Series.

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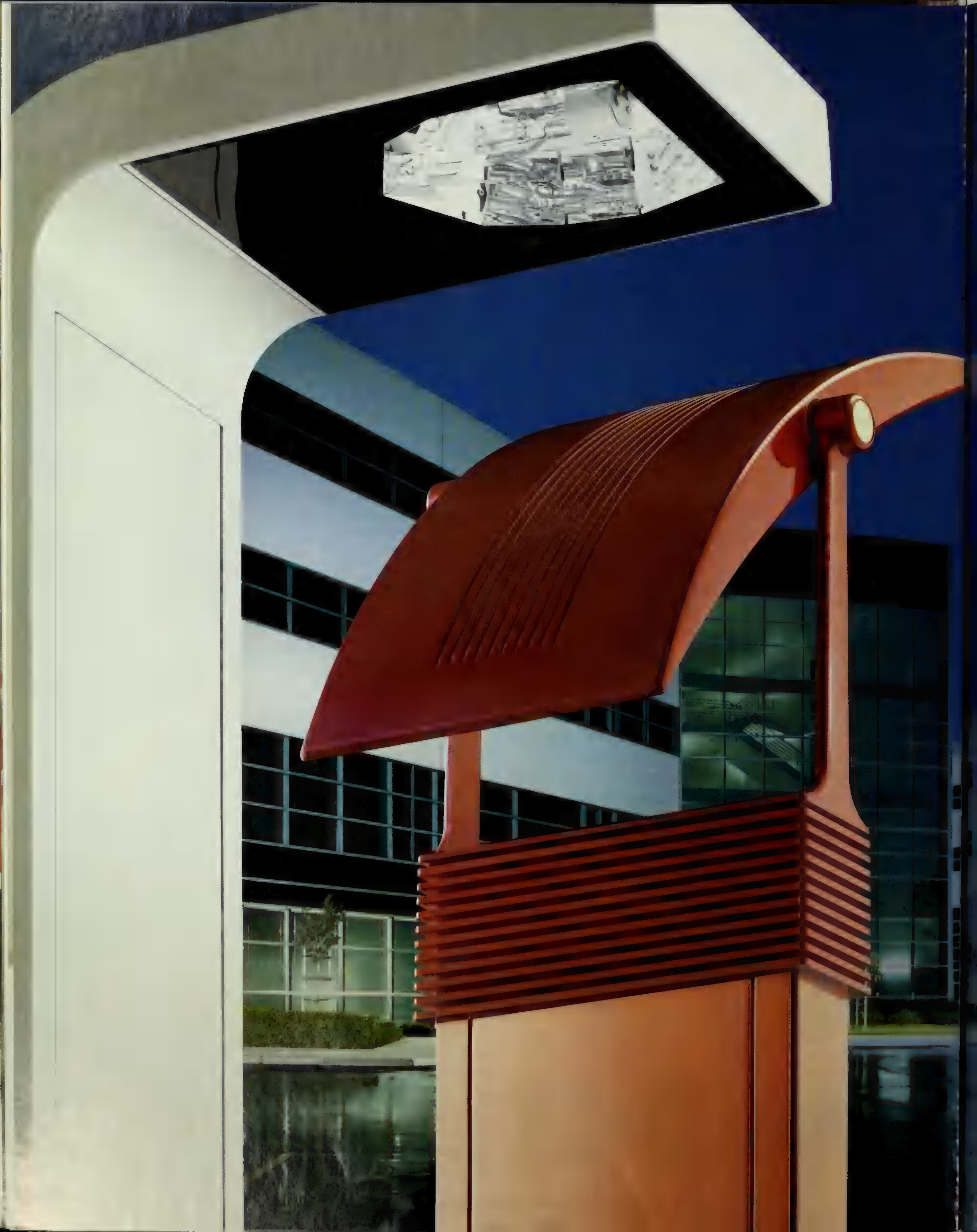

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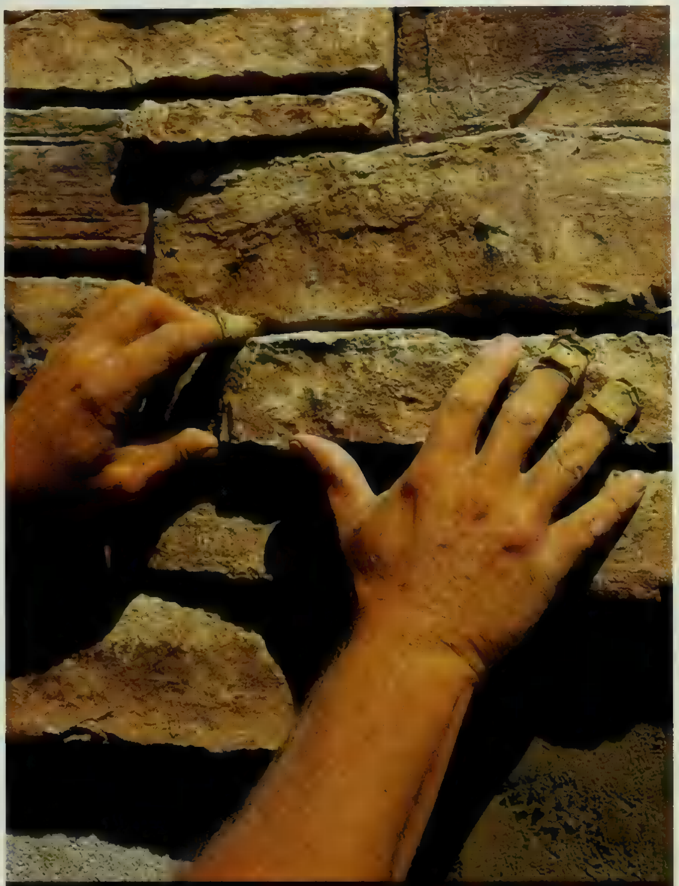

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On the Cover: *Steven Holl Architects' Nelson-Atkins Museum of Art. Photograph by Roland Halbe.*
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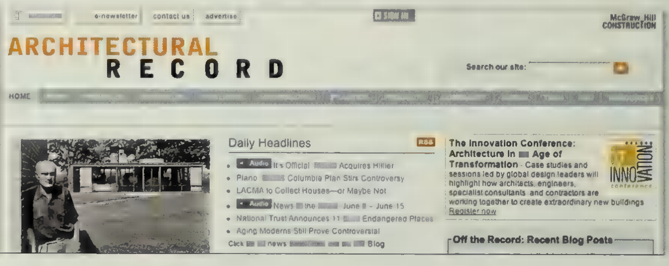

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building types study: k-10 schools

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residential section: inside out

Courtyards, outdoor living areas, access to natural light and air—these are just a few of the ways architects are addressing the design of homes that convey as much about **porosity and openness** as they do about **protection and shelter.** Web exclusive: Photos of the Pierre Thibault-designed Les Abouts house and the Low-Country Residence by Frank Harmon that you'll only see at ArchitecturalRecord.com!

project portfolio

A bevy of stunning cultural buildings, from Santiago Calatrava's Reina Sofia Palace of the Arts opera house in Valencia, Spain, to Steven Holl Architects' Bloch Building at the Nelson-Atkins Museum of Art in Kansas City, Missouri, prove that **architects across the globe** are celebrating the arts with graceful forms.

blogs and forums

Off the Record Written by the staff of *Architectural Record* where the magazine's team of experienced, award-winning editors offer their insightful, informal, opinionated takes on architecture-related trends, conferences, exhibitions, projects and personalities. **Your voice matters**—and we have provided you with the ideal forum to express your ideas, opinions, suggestions, and gripes. Our discussion forums, which are open to all, include such topics as Green Building Projects, Virtual Design, Practice Matters, and a forum for younger architects. You can also suggest and create your own discussion threads.

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residential: house of the month

Only at ArchitecturalRecord.com: Milwaukee-based Johnsen Schmaling creates a buzz with the Camouflage House, a linear home on Wisconsin's Green Lake that uses a simple palette in a surprising, contemporary take on Wisconsin's historic lake-cottage architecture.

archrecord2

archrecord2 introduces De Leon + Primmer, a firm adding to the evolving built environment of Louisville, Kentucky. We also reveal a winning competition for a listening room constructed of cardboard. Online, meet other talented young designers in Design, Work, and Live, and join the conversation in Talk.

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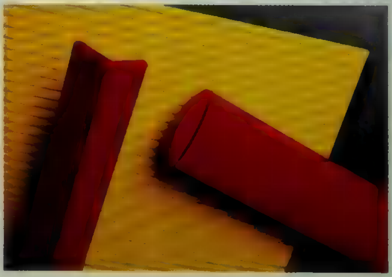

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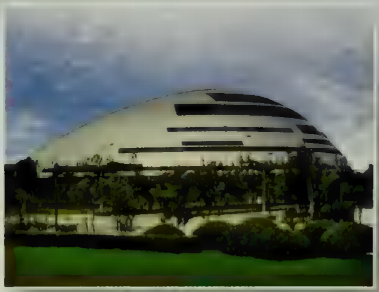

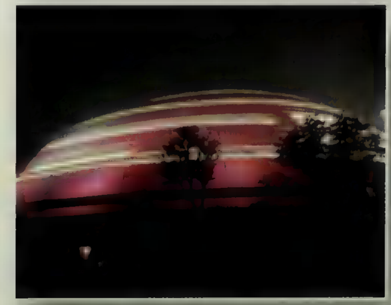

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Page

163-167

Market Trends Drive the Need for Effective Sound Solutions

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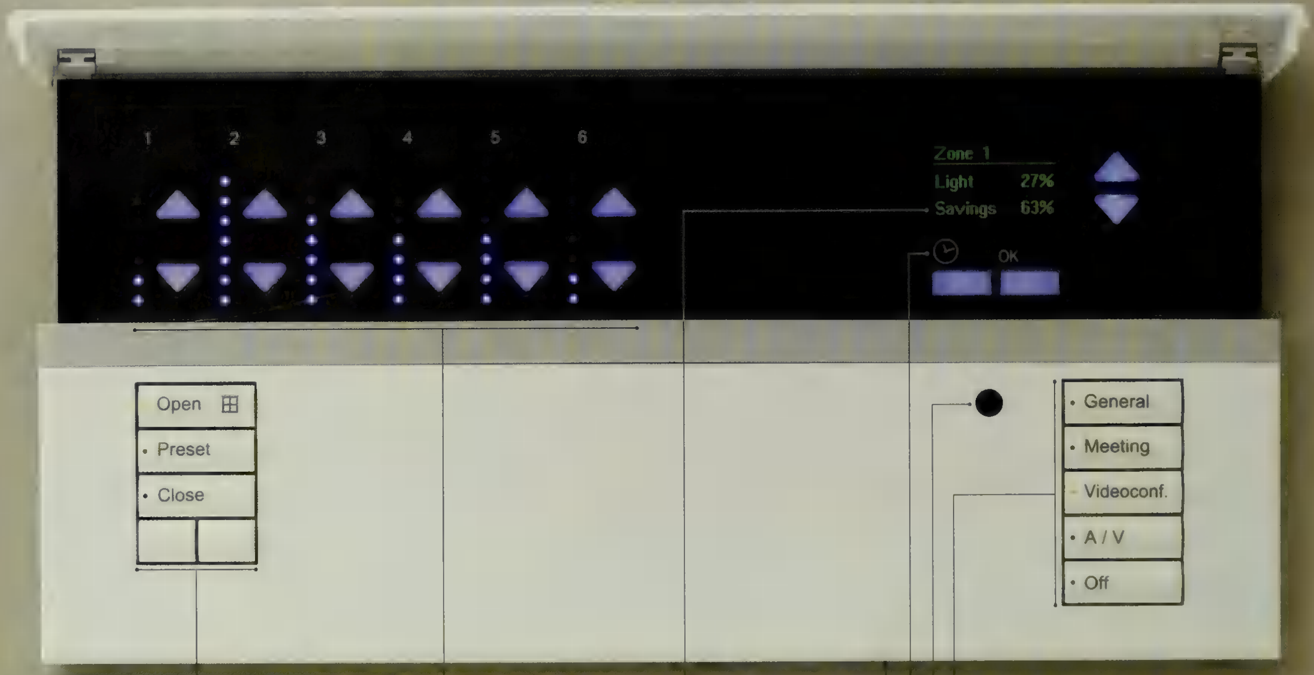

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Moving on down the road

Editorial

By Robert Ivy, FAIA

Beneath the veneer of respectability or trustworthiness, a little bit of Jack Kerouac lurks in us all. Haven't you, in the summer doldrums, wanted to chuck a few things in the back of a black convertible and hit the road—the mythic, American asphalt dreamstream that seduces us with the promise of abandonment and freedom? Bad boy Kerouac's travels, and the metaphorical, picaresque adventures he encountered, lie at the core of a persistent 21st-century dilemma: Mobility runs counter to environmental responsibility.

Unlike the heady days of the mid-20th century, when gasoline burned, burned, burned for pocket change, today we take a measured approach when confronting gas pumps employing higher math: A $70 fill-up, conveniently debited from the checking account, to reach the cabin by the lake in the four-wheel-drive SUV. How can we reconcile our desire—for motion, mobility, ultimate freedom—with finite resources? The road looks tough since Kerouac's '47 Caddie ran out of gas.

The relationship of movement and architecture, seemingly disparate terms, is drawing the attention of architects, scientists, engineers, planners, and politicians with renewed vigor. Routinely, even heroically, architects have planned intricate transportation centers at the interface of the pedestrian, the automobile, buses, light rail, trains, and airlines. At its most complex (think Reed and Stern and Warren and Wetmore's Grand Central Station in 1913) and its most recent incarnations, we have encouraged the ease of use of public transportation.

Movement has taken new turns. In recent years, the Dutch architect Francine Houben, who leads the firm Mecanoo, took "mobility" as a central concern in her intellectual and practice life, seeking fresh approaches to notions of transportation, commerce, and housing, for example, expanding on the popular idea of mixed use to include strategies of transportation and access to building projects. Internationally, architects are considering not only housing, but the combined effects of communities of buildings: relationship to transit, to workplace, to child care, to recreation. Architecture, whose gravity-induced fixity includes the study of "statics," reinvents itself as a discipline.

At another level, seemingly fixed structures are becoming kinetic. Think of Peter Eisenman's Phoenix Stadium, with its retractable roof and movable natural grass field, where the entire playing surface can be rolled outside the building for maintenance or scarce rainfall. Think of Calatrava's poetic Milwaukee Art Museum, with wings that open and close. The Chicago architect Jeannie Gang has pursued a fascination for motile structures, including the construction of the Starlight Theatre at Rock Valley College in Rockland, Illinois, whose roof folds back for skylit performances.

Sometimes we prefer to truck it in. Prefabrication has intrigued a new generation of architects, such as Jennifer Siegal and her Office of Mobile Design, Philadelphia's Kieran and Timberlake and their Loblolly House, Shigeru Ban and LOTEK who follow in the footsteps of Jean Prouvé's Maison Tropicale (1951) and Paul Rudolph's proposed prefabricated tower (with 4,050 units) to create individual components and entire buildings that can be hauled from place to place. The inventor of things that fold (toys, structures), Chuck Hoberman, has engineered a "Rapidly Deployable Structure" that can be erected in the field, such as for the military, in less than three minutes by four people.

On display and the subject of intense discussion at a recent June conference at the University of Hawaii at Manoa ("Architecture + Movement," an international symposium on Asia Pacific architecture), the architect William Mitchell presented the multidisciplinary research of his students at MIT, radical in its approach. Rather than propose a new way of building, Mitchell unveiled the design for a new form of conveyance—a two-person, stackable, folding car for zipping from transit to grocery. Theoretical and headed for testing as a prototype, the MIT vehicle brings architectural thinking to an intractable urban dilemma, and if more fortunate than the electric car, it could transform urban streets.

Architects may be neither regional planners, politicians, economists, or inventors. We may be artists, and often eager to travel, but comprehensive vision convinces us that Kerouac's road has limits. If we are clever, we can change gears and keep on moving. If we are clever, we can redesign the road.

Robert Ivy

Letters

A missed opportunity

Your May cover story on Edward Larrabee Barnes [page 166] did little to explain the posthumous awarding of the AIA Gold Medal to this great architect. Fred Bernstein's article seemed more focused on the work of other architects' additions to Barnes's original creations than on recognizing the remarkable influence Barnes had on American architecture or his extraordinary legacy of notable architects practicing today. As a former employee of his and one of the dedicated supporters who spearheaded the submission for the award, I can attest that the true impact of Barnes's practice, as indicated by the supportive testimonials within the application, were not conveyed in the article. Example statements from the submission are:

The New York, Kansas City, and Chicago chapters of the American Institute of Architects: "Mr. Barnes changed the face of the architectural community in New York in the 45 years of his practice. He took seriously the responsibility of training architects who worked in his office, and fostered an atmosphere of high aspirations, trusted collaboration, and delight in the creative process. Many of our country's most prominent practitioners are very proud Barnes alumni."
Kevin Roche, FAIA: "Ed Barnes was an exemplary architect—totally committed, totally absorbed, and totally dedicated to creating the finest, most responsible, and beautiful work. His iron will, fierce determination, and relentless energy in the pursuit of excellence produced a body of work virtually unparalleled in the last 30 years."
Henry Cobb, FAIA: "Barnes's influence has been broad and deep. The built works by Barnes that I have always found most engaging are those that display his exceptional [illegible] and inventiveness in dealing with problems of aggregation and assemblage, as manifested in a wide variety of building types and settings."
Agnes Gund: "As a collector, what most stands out for me is the exceptional sensitivity Ed brought to his museum designs. Each visit to one of his museums brings me a renewed sense of respect and joy for his extraordinary vision. His galleries never call attention to themselves, nor do they compete with the art. Instead, these gracious, light-filled spaces offer visitors the very best, but all-too-rare, kind of museum experiences—ones in which they can focus completely and appreciate fully the works of art exhibited in them."
Toshiko Mori: FAIA: "In his long career as an architect, Ed influenced the design of the built environment worldwide. He has left the important legacy of his signature design, which reflects an era when the European Modernist language derived from the Bauhaus tradition was assimilated into the mainstream of American culture."
Bruce Fowle, FAIA: "As a young architect starting practice in the 1960s, Ed was my idol. His houses and institutional buildings had a unique balance of simplicity, elegance, and warmth that greatly influenced my work, and that of numerous others. His was a personal style of Modernism that emanated from a commitment to honesty of expression, integrity, and a flair for the human spirit."
Robert Campbell, FAIA: "Ed's best work is notable for crisply geometrical buildings, often of richly textured wood or shingle. The Haystack Mountain School of Crafts influenced a whole generation of other architects, notably those who created such places as Sea Ranch, who, like Barnes, were seeking a humane and vernacular version of Modernism."
Terrence Riley: "As Modernism developed and continues to develop, its fundamentally European roots are replenished with cultural, technologic, and social resources from around the globe. In the second half of the 20th century, Barnes's work was seminal in the development of a modern architectural language that had an indelible American stamp."
Peter Blake, FAIA: "He seems to have grasped what few others understood as clearly or creatively—that a designed building in a participatory democracy should respond to a great variety of factors and that its ultimate form should express those conditions and demands rather than provide a memorial to its architect or to those who paid the bill."

Included in the long list of prominent architects who worked in the Barnes office and have been recognized as Fellows of the AIA are Alexander Cooper, Charles Gwathmey, Warren Gran, John M.Y. Lee, Herbert Newman, Jaquelin Robertson, and Robert Siegel.

The recognition of Ed Barnes's influence on our profession was long overdue. His previous submission for the Gold Medal was toward the end of his career in 1988—a difficult time when Postmodernism was foremost in the minds of the media and his steadfast commitment to his own style of Modernism was, prematurely, considered by many to be passé. Today, we have the benefit of hindsight and enlightenment—and with this award, we are able to warmly reflect on, and celebrate, Edward Larrabee Barnes as a remarkable person with many unparalleled accomplishments. The article in RECORD was a missed opportunity.
—Bruce S. Fowle, FAIA
Senior Principal, FXFOWLE

(For further discussion, please visit our Forum section at forums.construction.com.)

Overcoming narcissism

Juhani Pallasmaa's essay "On History and Culture" [June 2007, page 105] decries "the stage of today's egotistical and narcissistic architectural theater" while idealizing the creative talents of the architect as artist, citing Alvar Aalto, Louis Kahn, Erik Gunnar, and Sigurd Lewerentz. But narcissism is the shadow side of the artistic temperament, and the current "experiential and emotional shallowness" that Pallasmaa abhors reflects the inevitable consequences of pursuing an ideal of artistic expression in a culture where narcissism is the governing principle. I suspect the authenticity that Pallasmaa seeks can no longer be achieved through emulation of the ideal of the architec as culture hero, as Ayn Rand unintentionally illustrated with her portrayal of the architect-run-amok Howard Roark in *The Fountainhead*. The architecture of narcissism is in fact a concretization of "the cultural and mental structures of … (our) society." It rings hollow because our culture *is* hollow. Artists can never transcend the time into which they are born; they can only express the forces at work in that time. And Aalto's vision of architecture as paradise cannot impact the stark reality we face, on an overpopulated planet with rapidly dwindling options. I propose we get over this idea of architecture as art, roll up our sleeves, and try to save what we can. Narcissism can be described as attachment to an imag of oneself used as a defense against dystonic forces, such as a hostile parent or environment. We will not overcome narcissism in the culture without overcoming it in ourselves, and the place to start is with obsolet idealistic images of the architect's artistic calling.
—A. Vernon Woodworth, AIA
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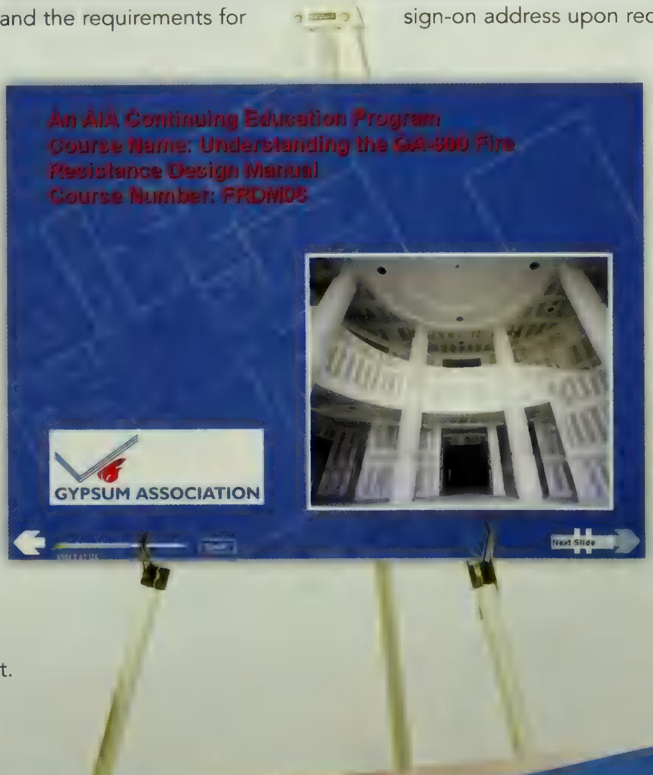
GYPSUM ASSOCIATION

GYPSUM ASSOCIATION POSTS TWO-HOUR CEU PROGRAM ON WEBSITE

Gypsum Association recently posted a new training program its website (www.gypsum.org). The program offers two an Institute of Architects (AIA) Health, Safety, and Welfare g units for its successful completion. The subject matter of gram is the Association's flagship publication, *GA-600, Fire nce Design Manual (FRDM)*, and it highlights several of the 's instructional sections including the general introductory ation, the general explanatory notes, and the requirements for tection and sound control. ion, the program provides guidance preting and understanding the found in the manual.

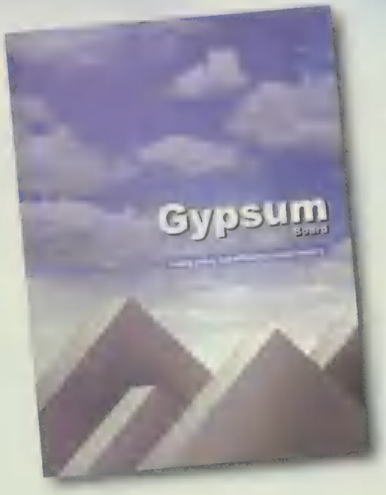
o-hour program consists of a ed version of the FRDM, which ants can download at the ing of the program, a series of hat walk participants through the sections of the FRDM – including true-or-false review questions - interactive quiz, which informs ants whether answers given are or incorrect as the questions are ed. Participants must achieve a of 80 percent or better to earn the . Once the quiz is completed, ants can print out their scores them in to the Gypsum Association, they will be reported to AIA for credit.


An AIA Continuing Education Program
Course Name: Understanding the GA-600 Fire Resistance Design Manual
Course Number: FRDM08

Because the program typically requires two hours to complete, it has been designed so that participants can log on and off and back on again, and return to the point in the program where they left off. A participant uses his or her email address as a sign-on ID and his or her AIA member number, or a random eight-digit number if AIA credit is not required, as a password. If someone forgets their sign-on information, the system will email that information to the sign-on address upon request.

And while the learning units offered by the program can currently be accrued only for AIA accreditation purposes, anyone with access to the Gypsum Association website can take the course. By opening the Education tab on the navigation bar, a participant simply selects the GA600 Online Course button to initiate the program. First time users will need to create a profile that will enable them to revisit the site as many times as necessary to complete the course. Once in the system, participants will be able to access new programs as they are added.

GYPSUM ASSOCIATION OFFERS PRESS KIT



The Gypsum Association has assembled a press kit designed for contractor organizations and suppliers to use to promote the use of gypsum products in their local media markets. The kit includes a series of clips of articles that explain the benefits of using gypsum board building systems in a variety of applications, including Area Separation Walls, fire-rated construction, and sound attenuating assemblies. The kit also includes draft versions of these articles that can be submitted to local media for customization and publication in the local market.

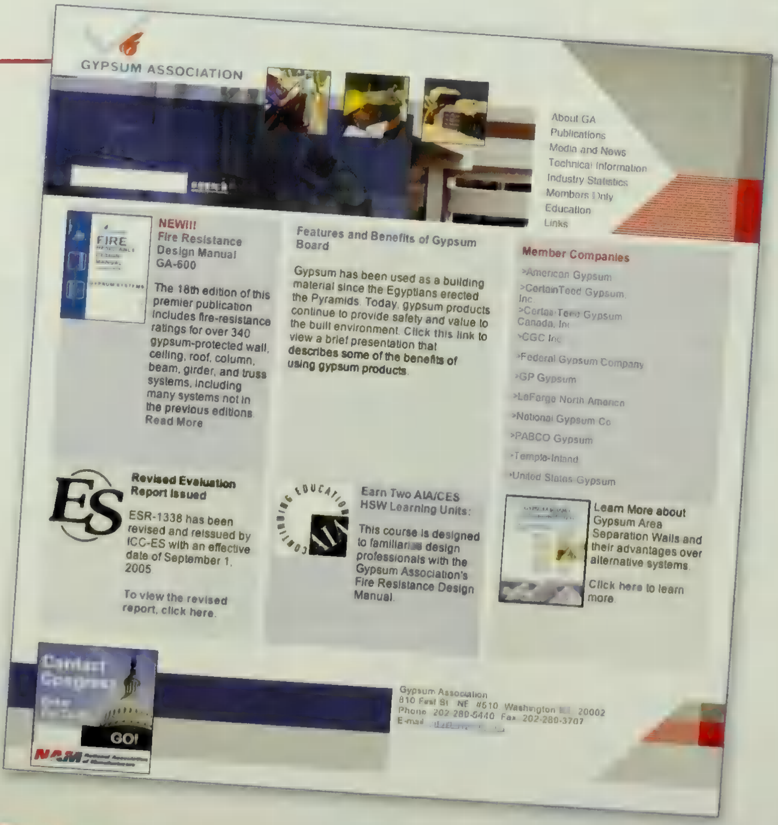
Virtually all of the materials that appear in print form are included in electronic form on a CD-ROM. Also included is a flash presentation that discusses the features and benefits of using gypsum board products, including a testimonial by an architect who specializes in school construction, in which he explains the success he has enjoyed specifying gypsum board building systems in the school market. The flash presentation is formatted so that it can easily be posted on a contractor organization's or supplier's website.

Organizations interested in receiving the press kit can do so by contacting the Gypsum Association at (202) 326-5419 or ljones@gypsum.org.

GYPSUM ASSOCIATION UPDATES WEBSITE

The Gypsum Association has recently launched its newly updated website at www.gypsum.org. The updated site sports a more streamlined look that both provides space for additional topics on the home page and simplifies the site's navigation utilities. These features allow the Association to provide more current information to visitors than before, while still presenting a fresh, easy to navigate layout. The subpages now share much of the look and the same navigation features of the home page, but offer more white space for a cleaner, easier to follow appearance than they offered in previous editions.

Though the look and navigation of the site has been revised, the information that has always been available from the Association's site is still in place. The new format will also enable the Association to update the site's information more readily and be more responsive to changes in the industry.



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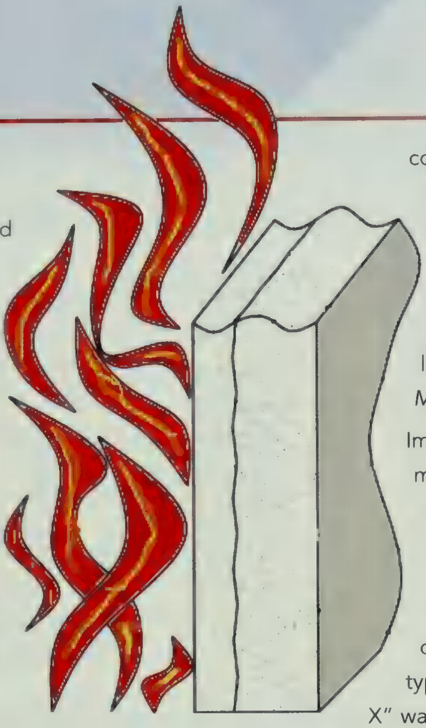

Our technical services support people regularly receive questions asking bout the difference between type X core and ther gypsum board products. On that asis, it seems that a quick review of the ifferent fire resistance categories of ypsum board is a worthy discussion.

he fire resistance of gypsum board can e described using three distinct terms: egular core, type X core, and improved ype X core.

egular Core – All gypsum is made of a oncombustible core material composed nainly of gypsum. Although it does not ave the specially enhanced fire-resistive roperties of type X, regular core gypsum oard affords a degree of natural fire esistance. Several layers of regular core gypsum oard can be used to achieve a specific fire rating. Regular ore gypsum wallboard meets the product requirements ontained in ASTM C 1396.

ype X Core – In the 1940s, different gypsum board formulations vere investigated to increase the naturally occurring fire esistance of regular core gypsum board. A new product was ventually introduced that clearly demonstrated "eXtra" fire esistance, hence the name "type X." The basic components f type X that give it a superior fire resistance are gypsum, lass fibers, and vermiculite. These ingredients and other dmixtures are combined in a carefully controlled manufacturing rocess to create type X gypsum board. The member companies of the Gypsum Association all voluntarily subscribe to an ongoing third-party in-plant product inspection and labeling service. They also certify to the Gypsum Association each year that their products manufactured for use in systems listed in *GA-600, Fire Resistance Design Manual*, continue to be inspected and labeled.

Improved Type X Core – In the 1960s, further modifications were made to the original successful type X formulations of gypsum board used in some systems – particularly ceiling systems – without compromising the fire-resistive qualities. The new product demonstrated additional fire resistance over type X core, and thus the term "improved type X" was coined. It should be noted that the "improved type X" formulations are proprietary to particular manufacturers. These formulations are not generic, as is type X. The specific fire test may be referenced for information on the thickness to be used and other details of the system. Type X gypsum board should not be used in a system that requires improved type X.

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NEW GYPSUM ASSOCIATION MEMBER

Michael Gardner, Executive Director of the Gypsum Association, announces that Federal Gypsum Company of oint Tupper, Nova Scotia, has joined the Association as an ssociate member. Action was taken on the application of Federal ypsum Company by the Board of Directors of the Gypsum ssociation during its October 20, 2006, meeting.

ESSENTIALS
FROM THE GYPSUM ASSOCIATION

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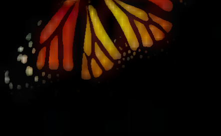

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Record News

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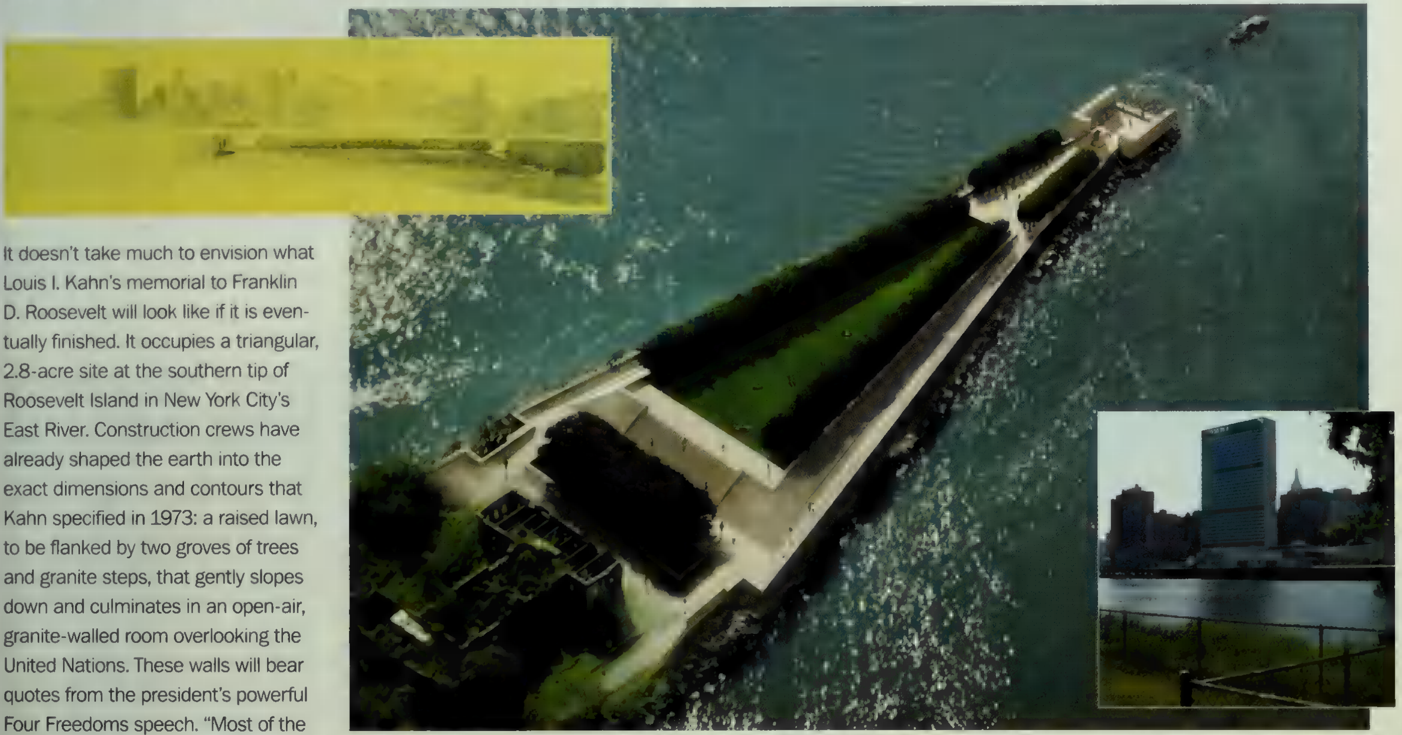
Is Louis Kahn's FDR Memorial back on track?



Louis I. Kahn designed a memorial to Franklin D. Roosevelt (top) that occupies 2.8 acres at the southern tip of Roosevelt Island in New York City's East River (above), facing the United Nations (right)—an organization the president helped create.

It doesn't take much to envision what Louis I. Kahn's memorial to Franklin D. Roosevelt will look like if it is eventually finished. It occupies a triangular, 2.8-acre site at the southern tip of Roosevelt Island in New York City's East River. Construction crews have already shaped the earth into the exact dimensions and contours that Kahn specified in 1973: a raised lawn, to be flanked by two groves of trees and granite steps, that gently slopes down and culminates in an open-air, granite-walled room overlooking the United Nations. These walls will bear quotes from the president's powerful Four Freedoms speech. "Most of the memorial is already there," says Gina Pollara, executive director of the Franklin D. Roosevelt Memorial—Four Freedoms Park project of the Franklin and Eleanor Roosevelt Institute (FERI). "We only need to plant the trees and lay the granite blocks."

Easy as that sounds, there is still the challenging matter of finding money to make it happen—something that FERI has struggled with since proposing a memorial in the 1960s. But the project just received a big boost. In June, it earned a letter of support from New York's new governor, Eliot Spitzer. FERI also received an anonymous $2.5 million donation, helping jump-start fund-raising efforts on a $40 million capital campaign.

These developments are the first in a dozen years. Although Mitchell/Giurgola Architects prepared construction documents following Kahn's death in 1974, the state and city's legendary budget crisis sidelined the project. Construction finally began during the 1980s—until money problems, coupled with a change of governors, once again stalled it. Great monuments often take years to complete, but Pollara is now feeling pressure from a competing scheme pegged for the same site.

The Roosevelt Memorial occupies an overgrown area known as Southpoint, which also includes the ruined Smallpox Hospital, designed by James Renwick in 1854. It is the last substantial open space on the island—neé Blackwell's Island, then Welfare Island—which the state has redeveloped according to Philip Johnson and John Burgee's 1969 master plan. At the request of then-governor George Pataki, the Trust for Public Land began reenvisioning Southpoint in 2003. It engaged Mark K. Morrison Associates, which, with input from island residents, created a plan titled "Wild Gardens/Green Rooms." It calls for stabilizing the Renwick ruins and maintaining Southpoint's feral quality with pocket-sized forests and lawns. Absent is a Roosevelt memorial.

A team led by WRT Planning & Design is now preparing construction documents for the scheme's $10 million first phase, which encompasses roughly 8 acres from the Renwick ruins north. Andy Stone, director of the trust's New York program, expects to break ground by summer 2008. He says that decisions regarding the remaining portion of Southpoint will depend on fund-raising—and the Roosevelt Memorial's fate.

Although Pollara is energized by her recent successes, this optimism is tempered with pragmatism. Relying purely on state support again would be a mistake, she says. But if FERI is unable to raise a substantial chunk of money from private sources within a year, the memorial will likely remain unbuilt—which Pollara says would be a shame. "Roosevelt Island was renamed because the memorial was going to be put there. Many people today don't even know who Roosevelt was, but his definitions of freedom are more important than ever." *James Murdock*

ON THE BOARDS

Agence Search experimented with levitation in designing a Paris headquarters for the Human Sciences Institute. The 72,000-square-foot building is elevated 21 to 30 feet on stilts above a garden; escalators and an auditorium cantilever over the street. *Robert Such*

Morphosis has designed a new headquarters near Shanghai for Giant Group Pharmaceutical. The 180,000-square-foot building's narrow form twists around, and cantilevers over, canals and a lake. Firm principal Tim Christ

says that the red-metal-clad structure resembles a dragon—which is what his Chinese clients dubbed it. *Sam Lubell*

The Beijing branch of **Office for Metropolitan Architecture** has designed Singapore Scotts Tower, a 36-story, 68-unit condominium building in Singapore composed of four distinct blocks cantilevered above a central core. "Nobody wants to live on the ground floor of a skyscraper," says partner Ole Scheeren. *Andrew Yang*

For full coverage on these projects: architecturalrecord.com/news/.

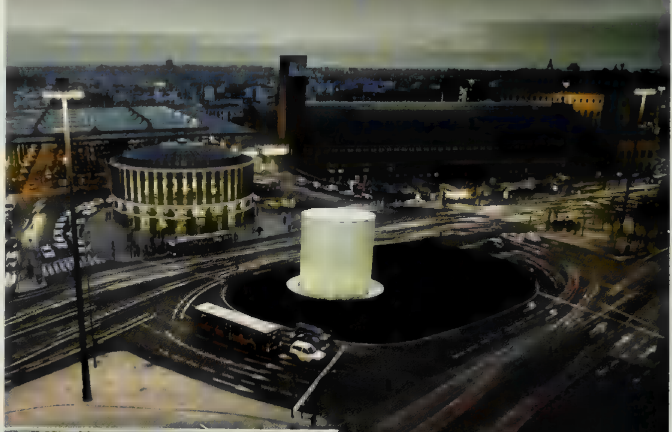
Victims of terrorist attacks memorialized

As the sixth anniversary of the terrorist attacks on September 11, 2001, approaches, memorials are rising around the country. Boston is planning a structure for Logan Airport, where the two planes that hit the Twin Towers originated. Designed by Moskow Architects, the 2-acre park containing benches and ginkgo trees is focused around a "Palace of Remembrance": a laminated glass-and-steel cube that measures 20 feet on each side. Inside the cube, which has no doors or roof, a pair of plaques will be inscribed with the names of the airplanes' passengers and crew. Different-size laminated glass pieces will dangle from cables overhead, swaying in the breeze like a mobile. It sits on a slight rise of land within sight of Logan's terminals: a stipulation of the client, the Massachusetts Port Authority. "It needed to be uplifting, to speak to the positive response to an unspeakable tragedy," explains architect Robert Linn, AIA. The $4 million project is set to break ground this September 11, with completion one year later.

Work is already progressing on the memorial at Ground Zero in Manhattan; its footings were poured in May. One-and-a-half miles north of the site, another 9/11 memorial is in the offing at St. Vincent's Hospital. During the attacks, this hospital was a command center for triage efforts. Afterward, its exterior walls became a de facto bulletin board for hundreds of missing-persons fliers. The original signs were archived, but plastic-covered facsimiles went up in their place.

Stamberg Aferiat Architecture will recreate this flier wall as the centerpiece of a memorial on a triangular, ¼-acre strip of land across the street from the hospital. Plans call for two, 90-foot-long, stainless-steel walls, each 14 feet high, to run parallel to each other separated by an 8-foot-wide path. The fliers will hang on the rear wall; beneath them, a metal panel will be etched with their images so that when the papers eventually disintegrate they reveal permanent versions. "So many of the September 11th memorials have become so huge that they no longer have the sense of the people who were lost," says Peter Stamberg, AIA. "We wanted to keep the immediacy of the original flier-wall tribute." Despite support from the hospital's staff, the $5 million project has been hampered by slow fund-raising and uncertainty over whether or not St. Vincent's might move.

Paper and other ephemera also inspired a memorial to terrorist victims in Spain. The city of Madrid unveiled a $6 million structure dedicated to the 191 people killed in attacks on March 11, 2004. Located on a traffic island across from the Atocha train station, where four bombed trains were heading, it is defined by a 35-foot-tall tower of glass blocks coated with a polymer membrane. Painted along the tower's inside walls are messages taken from condolence cards placed at a makeshift memorial. Visitors gaze upward from a below-grade room that is painted dark blue, to contrast with the streaming sunlight from above. "A train station is not necessarily the best site for a memorial, since it's so functional," says Miguel Jaenicke, a partner of the architect Estudio F.A.M. "But in Madrid, we enjoy really good skies, so we used natural light to create a special room." *C.J. Hughes*



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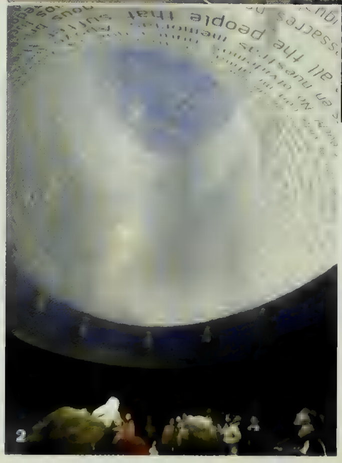

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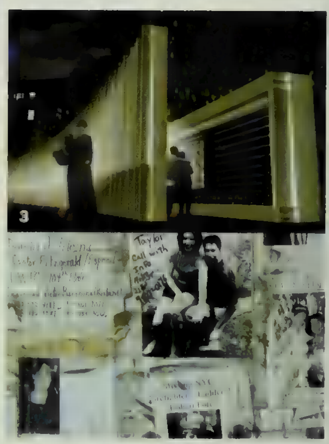

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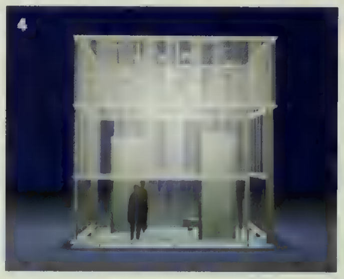

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Studio F.A.M.'s memorial to March 11, 2004, in Madrid (1, 2). Stamberg Aferiat's 9/11 Wall of Remembrance in Manhattan (3). Moskow Architects' 9/11 Memorial in Boston (4).

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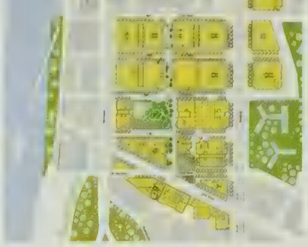
Piano, SOM's Columbia plan stirs controversy



Created by Renzo Piano and SOM, Columbia University's new 17-acre campus (top) will replace low-rise warehouses and tenements (left) with glass-walled towers (far left).

Renzo Piano is not bashful about his plan to raze century-old, masonry-clad factories and tenements in West Harlem and replace them with big, crisp buildings of steel and glass—a new campus for Columbia University that resembles the film *Metropolis* more than the existing neighborhood. "Cities are bound to change," he says, "You have to accept it."

Pressed for space at its original campus in Morningside Heights, 10 blocks south, Columbia hired Piano in 2003. He created a sprawling, city-within-a-city that covers 17 acres with 6.8 million square feet of box-shaped towers; Skidmore, Owings & Merrill formulated the urban plan. But to make way for this development, Columbia must contend with three privately owned warehouses that refuse to sell, including one that was recently added to the National Register of Historic Places. The plan to demolish them is raising the specter of eminent domain and pitting Columbia against Harlem residents.

Piano says the results will be worth the controversy. Punctuated by tree-lined quads, his buildings are meant to bring a new, open sense to the neighborhood. Their ground floors will host retail stores and restaurants. "We put the dirty functions—garbage, ramps, parking, and loading—underground, because they make a very opaque environment, and we put the research facilities up higher, so that everything on the ground is more transparent and public," he explains.

Columbia's plan took a big step forward this summer following the completion of an environmental-impact statement and feasibility study by Thornton Tomasetti and AKRF. The city's Planning Department was scheduled to start the land review process on June 18, giving the local Community Board 60 days to review Columbia's plans and suggest changes. If approved, construction would be completed in two phases: the first by 2015, the second by 2030. Meanwhile, the Community Board's own plan, called 197A—which includes more preservation and avoids eminent domain—goes before public hearings this month.

Developing a new campus almost as big as the original one requires extensive dialogue with neighborhood residents, Piano concedes. "Listening is a very tough job, because you have to listen to the right voices, and sometimes the right voices are very little voices." But residents wonder if, so far, the architect has listened only to Columbia. His plan calls for retaining only a handful of existing buildings: three small, brick structures dating to the early 1900s. They include a terra-cotta-faced building where the architect makes his local office. "We saved buildings that will give a sense of the history of this neighborhood. It's a mix of the past but, at the same time, the courage to go ahead and change," he says.

Neighborhood residents and others contend that more preservation is warranted. "How can only three or four buildings preserve the character of a neighborhood?" asks Eric Washington, author of *Manhattanville*, a history of the area. "That's a lot of responsibility for four buildings." Instead of demolishing some of the older structures, residents want Columbia to build its campus around them. "It has the opportunity to embrace such a rich community," says Anne Whitman, owner of Hudson Moving and Storage, which could be seized if the state, prodded by Columbia, invokes eminent domain.

For its part, the university contends that an influx of shopping, dining, working, and living opportunities will quiet dissent. "This is an area that is going to change, and should change in significant ways," says Columbia University president Lee Bollinger. It's a sentiment that Piano shares: "You can't embalm a city," he says. *Dorian Davis*

Cities juggle new condos with industrial base

How should a city manage residential development in a way that protects its historic manufacturing zones? Not surprisingly, perhaps, Donald Trump has exposed this planning dilemma with an opulent condominium-hotel tower designed by Handel Architects and David Rockwell, slated for a largely industrial block on the fringe of New York City's trendy SoHo neighborhood.

The conundrum is as much architectural as it is economic. Although cities nationwide are welcoming residential development to create a 24/7 environment downtown, these projects often displace small-scale industrial uses that contribute greater tax revenues. Preservationists also complain that these buildings—usually glass-walled towers—are out of character with historic urban fabric.

Planners are exploring ways to limit or refocus new residential development. Chicago Planning and Development Department design director Bennett Haller sums up the thinking: "We're trying to segregate residential uses from manufacturing uses because they tend not to live well together."

Los Angeles's planning department, for instance, is debating a cap on new housing in its industrial downtown by mandating a lower floor-area ratio. Despite successful loft conversions in L.A., a recent study shows that manufacturing zones employ nearly 1,000 people per acre. Not only is this much-needed capital, says veteran urban planner Ronald Shiffman, of the Pratt Institute, "small-scale manufacturers and people who work with their hands enliven old loft buildings."

In New York, the Trump battle turns on a common zoning rule: Hotels may rise in manufacturing zones, but permanent housing requires special approval. Andrew Berman, head of the Greenwich Village Society for Historic Preservation, contends that Trump's "hotel" will in fact furnish permanent apartments to elite buyers, so he is urging the Department of City Planning to require special review for it and other condo-hotels.

Berman also took a swipe at the design of many new residential towers—"The problem isn't the size; it's the glass," he told *Crain's* in March—but has since distanced himself from these remarks. "We judge every design on its merits," Berman told RECORD. "You never want to say, 'there's no way you could do this with this amount of glass,' because that's the work of the architect."

Some observers worry about the rush to regulate. Paul Byard, FAIA, who has written on landmark buildings, contends that public authorities wade into subjective waters when they try to protect a neighborhood's character. When it comes to solving problems like Trump's SoHo tower, he says, "neither hysterical locals nor rapacious developers but something bigger than them" is necessary. What's needed, in other words, is a process at least as democratic as *The Apprentice*. *Alec Appelbaum*

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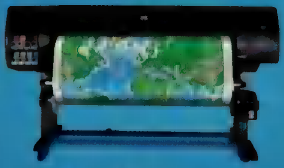

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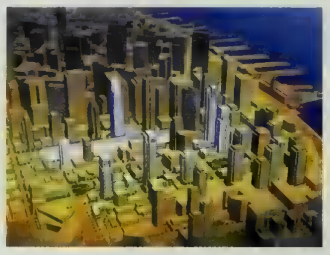
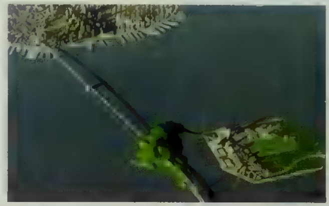
California redevelopments move forward

After two years on the drawing boards, the Los Angeles River Revitalization Master Plan received City Council approval in May. It calls for lowering, terracing, and greening much of the waterway's concrete channel barriers as well as redeveloping surrounding areas into parks: a total of 239 projects along 31 miles of the 51-mile-long river. Five "opportunity zones," which include rail yards downtown and industrial zones in the San Fernando Valley, will receive extra focus to demonstrate how the plan might encourage neighborhood redevelopment. Proposals include constructing new walking paths, a network of tree-lined connector streets, wetlands and wildlife habitat restoration, and new water-treatment facilities. The master plan could take up to 50 years to build out. It was developed by a team led by the city's Bureau of Engineering and Tetra Tech. The City Council's Ad Hoc River Committee, which will administer the plan, is now seeking funds from federal, state, and local sources.

Big things are also in the works for San Francisco. Next month, an architect-developer team will be selected to design the Transbay Center: a 1-million-square-foot, multimodal transit hub and adjacent skyscraper on a roughly 12-acre site within a 40-acre downtown redevelopment district. The tower could be the city's tallest, rising from 850 to 1,200 feet, depending on the city's final approval. Transbay's short-listed architects are Richard Rogers Partnership; Skidmore, Owings & Merrill; and Cesar Pelli & Associates. The team of Santiago Calatrava and Boston Properties decided to withdraw from the competition in mid-May. "Their concern was being able to create an economically viable project for them as a developer," explains competition manager Donald Stastny, FAIA.



Architects are vying to design San Francisco's Transbay redevelopment (left). SOM leads a team remaking the city's Treasure Island (below). Los Angeles is set to begin work on revamping its river (below left).



The project is being developed by the Transbay Joint Powers Authority, which is controlled by the City and County of San Francisco, the Alameda-Contra Costa Transit District, and the Peninsula Corridor Joint Powers Board. Once a conceptual design is selected, Stastny says, design development should take two years. Construction is scheduled to begin in 2010, with completion expected by 2014.

An even bigger project is also moving forward in San Francisco: the redevelopment of Treasure Island, a former naval base. The project team includes SOM, which is preparing the master plan, SMWM, and CMG Landscape Architects, as well as developers Kenwood Investments, Wilson Meany Sullivan, and Lennar. After receiving preliminary approval from the city's Board of Supervisors, the developers began preparing an Environmental Impact Report in June. The master plan includes a residential zone containing 6,000 housing units, a 60-story residential tower, a 235,000-square-foot retail center, and a ferry terminal that will provide service to the mainland. There will be 300 acres of open space, including wetlands, playgrounds, and an organic farm. The project's price tag of $1.2 billion—which excludes building development costs—will be financed through private investment and $700 million in municipal bonds. The first residential units are expected to open in 2013, and the entire project could be finished by 2022. *Sam Lubell*

Poland ready for its close-up

Urban revitalization is emerging in Poland in tandem with world-class design, drawing the likes of architect Robert Krier and filmmaker David Lynch to the scene for movie-related building projects. In Lodz, a town outside of Warsaw where Lynch shot scenes for *Inland Empire* last year, the pair is in development talks for an urban renewal project whose cornerstone will be a film studio and arts center. In conjunction with locals Marek Zydowicz, director of the Camerimage Film Festival, and Andrzej Walczak, a businessman and architect, Lynch established The Arts of the World Foundation to lead the project. It plans to convert a 108,000-square-foot power station, built in 1906, into an art gallery, a postproduction editing studio, and a large hall for symphony recording sessions.

The foundation invited Krier to propose designs. The Luxembourg-based architect is also currently developing plans nearby for a 220-acre area surrounding the Lódz Fabryczna railway station, which has been designated a new city center. "The main focus will be put on cultural facilities," says Kazimierz Suwala, who chairs the foundation's board. "The intention is to create a new urban quarter in the center of Lodz that will become the city core, which was lacking until now."

The preliminary scheme calls for relocating railroad tracks underground and converting the historic train station for a new use. Hotels, residential buildings, and shops are also planned, as well as a 1,000-seat theater for the Polish Film Festival. Future phases could include a museum and technology park. Construction is set to begin in 2008.

Film is inspiring development elsewhere in Poland, too. In Krakow, the Schindler Factory, a World War II–vintage structure where Steven Spielberg filmed *Schindler's List*, will soon house Poland's Museum of the Righteous Among the Nations. This institution pays tribute to those who risked their lives to save Jews during the Holocaust. Krakow created a $1.2 million grant for the factory's adaptive reuse, designed by Aleksander Janicki, and the museum is slated to open in 2008.

A similar project is under way in Warsaw, also due to open next year. Finnish architect Rainer Mahlamaeki, of the Helsinki firm Lahdelma and Mahlamaeki Architects, is working on the Museum of the History of Polish Jews. The $55 million project is located in the old Jewish section of Warsaw adjacent to Natan Rappaport's Monument to the Ghetto Heroes. It is just one outgrowth of the mayor of Warsaw's Urban and Architectonic Council, created in 2003 to oversee downtown rejuvenation over a 10-year period. The initiative has also produced the new Warsaw Museum of Modern Art. Designed by Swiss architect Christian Kerez, the $91 million museum will open in 2010. *Dianna Dilworth*

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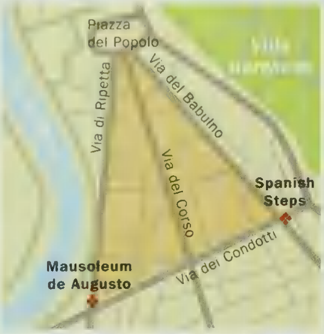
Pedestrians gain a leg up in Rome



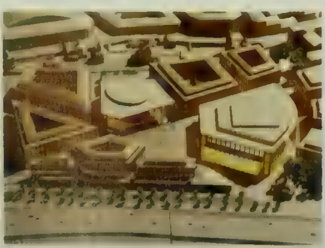
Although Rome is no longer the head of an empire, plenty of roads still lead to it. Many of its streets are now getting swept up in a radical redesign of the city's urban fabric. As cars and scooters are slowly exorcised from the city's center, tire-friendly asphalt is replacing the historic *sanpietrini*, or cobblestones, on major traffic arteries. The old *sanpietrini* will be used to resurface streets and piazzas that will be handed over to pedestrians at the project's end.

Mayor Walter Veltroni outlined the "restyling" plan at a press event earlier this year. Areas throughout the city center—most notably the roughly ¼-square-mile triangle-shaped area bounded by Via di Ripetta, Via del Babuino, and Via dei Condotti—are slated to go pedestrian-only. Once all the new pieces are in place, visitors will be able to access the cobblestone streets by foot, bicycle, bus, or taxi. Those who choose to drive will be required to leave their vehicles in a newly created 700-spot parking lot by the Pincio Hill, which began construction in June.

To support this massive *pedonalizzazione*, or pedestrianization, some streets will be designated for various forms of public transportation. This summer, for instance, the busy Via Nazionale is becoming a smooth ride, with buses relegated to its middle lanes and other traffic flanking them to either side. Other changes are also afoot. This spring, the city began installing 36 new *nasoni*, Rome's ubiquitous large-nosed drinking fountains, whose design dates to 1874. It is also rebuilding the minute sidewalks along many asphalted streets—this time wide enough to be walked upon.

In a city built on layers of competing histories, change can be a complex, contradictory process. For some, modernizing Rome's roads involves removing a crucial part of history and an integral part of the city's chaotic livability. But for many others, *pedonalizzazione* represents a dream come true. Tourists, architectural historians, and locals craving a good long look at Rome's legendary architecture will finally be able to study it without that speeding Vespa in the back of their minds. It took more than a day to build Rome—several centuries, in fact—but *pedonalizzazione* is expected to be complete by December 2009 at a cost of $267 million. *Susan H. Gordon*

Foster's Kremlin project draws criticism



The Foster + Partners designed Zaryadye project, a $1.5 billion mixed-use complex on a 13-acre site near the Kremlin in Moscow, was mired in legal proceedings, but its scheduled September ground breaking now seems back on track. A Russian court had annulled the results of a competition that selected developer ST, but in [illegible] courts upheld the validity of ST's [illegible] with the city. Critics, meanwhile, complain that Foster's design is derivative. *Paul Abelsky*

News Briefs

The 2007 European Union Prize for Contemporary Architecture Mies van der Rohe Award went to Mansilla + Tuñón, a Spanish firm led by Luis M. Mansilla and Emilio Tuñón, for its Contemporary Art Museum of Castilla y León (right), in León, Spain. Bevk Perovic Arhitekti, a Slovenian firm led by Matija Bevk and Vasa J. Perovic, received special mention as an emerging architect for its Department of Mathematics building at the University of Ljubljana in Slovenia. *J.M.*

The American Academy in Rome has conferred its 111th annual Rome Prizes. Frederick Fisher, of Frederick Fisher and Partners, and Daniel Mihalko and Annie Han, of Lead Pencil Studio, won in the architecture category. John Cary, of Public Architecture, and Molissa Fenley, of Molissa Fenley and Dancers, won in the design category. Jana Dambrogio, of the National Archives and Records Administration, and John Ochsendorf, of the Massachusetts Institute of Technology, won in the historic preservation and conservation category. Alan Berger, of Harvard University, and Lisa Tziona Switkin, of Field Operations, won in the landscape architecture category. *J.M.*

The Cooper-Hewitt Museum has named its 2007 National Design Awards winners. They include Antoine Predock, who received a Lifetime Achievement Award (his American Heritage Center and Art Museum, in Laramie, Wyoming, is shown, left); Denise Scott Brown and Robert Venturi, who were given the Design Mind Award; Office dA, which won the Architecture Design Award; Lewis.Tsurumaki.Lewis, which won for Interior Design; and Peter Walker and Partners, which won for Landscape Design. *J.M.*

The 2007 Kenneth F. Brown Architecture Design Award, which recognizes architects and their works in the Asia-Pacific region, went to two projects. Anna Heringer and Eike Roswag, of the Austrian atelier Heringer-Roswag Cooperation, won for their School—Handmade in Bangladesh, located in Gona Aloy, Bangladesh. The Japanese firm Atsushi Kitagawara Architects won for its Gifu Academy of Forest Science and Culture, in Mino City, Japan. *J.M.*

Alberto Kalach's Biblioteca José Vasconcelos was hailed as a cultural gem for Mexico City—and, at 500,000 square feet, the largest public library complex in Latin America—when it opened in May 2006. But less than one year later, the $100 million complex was forced to close in March when its unfinished water system began leaking, causing damage to elevators, marble floors, and walls. Repairs are due to be finished this month, but critics accuse former Mexican president Vicente Fox's administration of rushing construction so that the library would open before a hotly contested election last summer. *Ronda Kaysen*

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rporation

On the waterfront—in Yonkers

Cleaner than it's been in decades, the Hudson River is a cynosure for residential developers, who value the profitable potential of its scenic vistas. The shores of Lower Manhattan were first to sprout high-rise condos, followed by Jersey City across the river. Now, 15 miles to the north, the former industrial powerhouse of Yonkers is transforming its disused Hudson waterfront and reclaiming another, much neglected waterway.

Following the model of Providence, Rhode Island, which uncovered its own river in the 1990s, Yonkers is unearthing and cleaning up three segments of the Saw Mill River, which has coursed largely unseen through subterranean pipes and culverts under the city's center since the 1920s. Outdoor cafés and landscaped promenades will eventually line its banks. The first two segments, totaling ⅓ mile, will be completed in 2010.

The reborn Saw Mill forms the heart of a $1.8 billion project called River Park Center. Stuever Fidelco Cappelli, a partnership of local developers, is clearing 18 acres comprising eight blocks surrounding Getty Square, Yonkers's historic center. More than 4 million square feet of condominiums, apartments, shops, a hotel, offices, parks, and a baseball stadium will start rising at the site in September. The designers include Ehrenkrantz Eckstut & Kuhn Architects, Clarke Caton Hintz, and Design Development.

River Park's 6,500-seat stadium rests atop commercial space—home plate will be situated 100 feet above ground level—with two residential towers flanking it, providing residents with a bird's-eye view of the action. "We wanted to stack all these different parts on top of each other to create synergy," explains Mark Schulman, a principal of Design Development.

Other large-scale residential projects are already under way. They include Hudson Park North, which broke ground last winter on the site of a former lumberyard. The $125 million development is composed of two connected towers containing 294 apartments, and an esplanade that connects to a newly refurbished pier on the Hudson.

Do H. Chung and SCLE Architects designed Hudson Park's residential portion: two towers, 12 and 14 stories, respectively, that bookend a row of lower-rise units. It's a massive and dense project for the neighborhood—but some believe the city is due for a new look. "We are creating a new vernacular here because Yonkers was torn to shreds in the past 50 years," says Arthur Collins, a principal of the project's developer, Collins Enterprises.

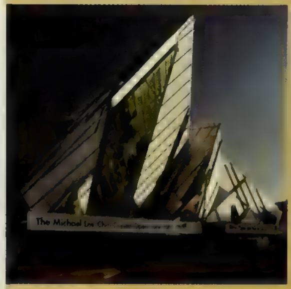
Other designs are testing the city's appetite for novelty. This much became clear at a public hearing in March, when British architect Wil Alsop unveiled his proposal to stack 400 apartments on top of a disused power plant on the Hudson. The scheme would require replacing a pair of brick smokestacks with a multicolored glass, 25-story tower perched on tentaclelike stilts. Neighbors objected that it is too tall.

Alsop defended his design by saying that the plant "will fall down if nobody does anything about it." A side benefit, he added, will be that the scheme's esplanade and café could help reconnect residents to the Hudson—and, in the end, "life comes down to eating, drinking, and feeling relaxed." *C.J. Hughes*

News Briefs

Tod Williams Billie Tsien Architects won the competition to design a $100 million arts center for the University of Chicago. Although the building's exact size is yet to be determined, its design features five interlocking boxes, clad in glass and stone, and a six-story tower with a partially retractable roof that allows views of Chicago's skyline. The other finalists were Fumihiko Maki and Associates, Hans Hollein, Morphosis, and Studio Daniel Libeskind. *Violet Law*

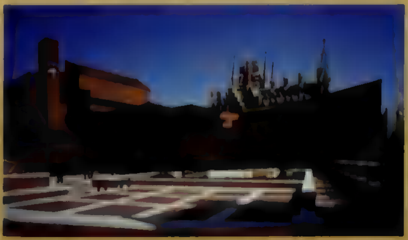
Standard 189P has been released for public comment, which will be accepted until July 9 at www.ashrae.org/publicreviews. Officially called the "Standard for the Design of High-Performance Green Buildings Except Low-Rise Residential Buildings," it will provide a baseline for sustainable design, construction, and operations—and ultimately could be incorporated into building codes. Addressing both new commercial buildings and major renovations, it encompasses energy and water efficiency, greenhouse gas emissions, sustainable site selection, and materials. The American Society of Heating Refrigerating and Air-Conditioning Engineers, the Illuminating Engineering Society of North America, and the U.S. Green Building Council developed it. Standard 189P is expected to be complete by the end of 2007. The Green Building Initiative, meanwhile, expects to release for public comment a standard with similar goals in the fall. *J.M.*



Studio Daniel Libeskind's Michael Lee-Chin Crystal, a 175,000-square-foot expansion of Royal Ontario Museum (ROM), opened June 2 in Toronto. It shares the aesthetic of angular, crystalline forms with Libeskind's Hamilton wing at the Denver Art Museum. But as ROM museum director William Thorsell notes, "the cladding, the finishes, the nature of the interior spaces are all quite different." *Alex Bozikovic*

Giorgio Cavaglieri, an Italian-born architect who helped jump-start New York City's preservation movement, died on May 15 at the age of 95. His projects included the restoration of the Jefferson Market Library, in Greenwich Village, and converting the old Astor Library into the Public Theater. As president of the Municipal Arts Society during the 1960s, he fought to spare Grand Central Terminal from significant alterations. *J.M.*

Sir Colin St John Wilson, the British architect, educator, and arts patron, died on May 14, at the age of 85. Known as "Sandy" to his friends and colleagues, he had taught at both Yale and MIT, and served as director of the Cambridge School of Architecture. Wilson's enduring built achievement is the British Library. Completed in 1997, this controversial but now celebrated landmark adjacent to St. Pancras Station, in London, occupied several decades of his career. It combines monumental scale with attention to detail. *Peter MacKeith*



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Boston's mayor revives plans for new city hall

While officials in Boston push ahead with plans for a new city hall, advocates are stepping up efforts to save the existing structure. The Boston Landmarks Commission agreed this spring to review a petition seeking protections for the building's exterior and main lobby. Supporters view the case as a local and national bellwether for preserving Modernist architecture, which increasingly finds itself in developers' crosshairs.

Kallmann McKinnell and Knowles's Boston City Hall has been controversial since its completion in 1968. Many architecture critics praise its Brutalist aesthetic—with characteristic features including exposed concrete, bold forms, and monumentality—and its Classical references. But detractors, including Mayor Thomas Menino, cite the building's massive scale, labyrinthine interiors, and vast windswept plaza as unwelcoming and inefficient.

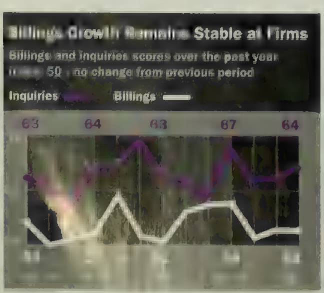
Menino has revived a 1998 scheme to sell the downtown site for private development and then construct a new city hall and civic center several miles southeast in the South Boston seaport district. The city is still studying this new site and reviewing its space requirements, according to a spokesperson. But a number of city councilors, including the council president, oppose the plan and contend that such a move would push municipal offices to a peripheral location that lacks adequate infrastructure.

A timetable has yet to be set for a Landmarks Commission hearing. Preservationists worry that the process can be slow—and that the mayor holds a veto. Failing designation as a local landmark, the city hall might qualify for National Historic Landmark status or the National Register of Historic Places. While neither would prevent the building's destruction, says preservation advocate Gary Wolf, AIA, "both have certain types of protection and would make it challenging from a PR standpoint to tear down."

Even if Boston decides to construct a new building, admirers of the existing City Hall hope that it will be put to other uses. For their part, municipal officials stress that Menino has not called for its demolition. *Ted Smalley Bowen*

ABI chugs along, but inquiries show strength

This April's Architectural Billings Index, prepared by the American Institute of Architects, held steady for the third month in a row with a score of 52.7; any showing above 50 indicates growth. But many of the mostly commercial firms surveyed said that inquiries for new business are rising, suggesting that billings will increase later this year. *J.M.*



News Briefs

Eero Saarinen's Gateway Arch, in St. Louis, is the subject of a documentary film airing on public television stations nationwide this summer. *The Gateway Arch: A Reflection of America* follows the monument from the time it was proposed in 1933 to its completion in 1965—and Saarinen's groundbreaking use of orthotropic design to create the structure. "Had they had money to start building in the 1940s, they wouldn't have been able to because the technology didn't exist for another decade," says the film's codirector Bob Miano, of Civil Pictures. *J.M.*

The World Monuments Fund unveiled its 2008 World Monuments Watch List of 100 Most Endangered Sites in June. This year's list highlights buildings and other heritage sites that are threatened by political conflict, unchecked development, and for the first time, climate change. Two places, much in the headlines, appeared for different reasons: New Orleans was cited for the ongoing risk that climate change presents to its future, and Iraq was cited for the continuing conflict that threatens to damage cultural sites. The fund also singled out Modernist buildings worldwide, including Louis I. Kahn's Salk Institute, that are vulnerable to encroaching development. For the list's complete text, visit architecturalrecord.com. *J.M.*

The National Trust for Historic Preservation released its 2007 list of America's 11 Most Endangered Places. Since initiating this list in 1988, the trust has successfully helped save 52 percent of these sites from destruction. On this year's list are: Brooklyn's industrial waterfront in New York; El Camino Real National Historic Trail, in New Mexico; the H.H. Richardson House, in Brookline, Massachusetts; Hialeah Park, in Hialeah, Florida; historic places in power line corridors in seven Mid-Atlantic states; historic structures in Missouri's Mark Twain National Forest; motels along Historic Route 66; the Minidoka Internment National Monument, in Jerome County, Idaho; the Philip Simmons Workshop and Home, in Charleston, South Carolina; Pinon Canyon, Colorado; and Stewart's Point Rancheria, in Sonoma County, California. Visit architecturalrecord.com for descriptions of each place. *J.M.*

ENDNOTES

- Silverstein Properties and the Port Authority of N.Y. and N.J. reached a settlement with seven insurers to receive the remaining $2 billion in claims on the World Trade Center. The May 23 agreement ended six years of legal battles and removed the last major obstacle to rebuilding at Ground Zero.
- The Frank Gehry–designed Atlantic Yards project scored a significant victory on June 6 when a federal judge dismissed a lawsuit against developer Forest City Ratner, which is seeking the use of eminent domain to seize a dozen properties at the Brooklyn site where it plans to build the $4 billion mixed-use complex. Plaintiffs say they will appeal this decision.
- Autodesk has signed a $25 million agreement to acquire NavisWorks, which produces a universal file reader for 3D coordination, collaboration, and construction sequencing. The sale will be complete by August.
- Hill Glazier Architects, a 40-person boutique firm specializing in hospitality design, has merged with HKS Architects, an architecture and engineering giant with offices in 18 cities worldwide. The HKS Hill Glazier Studio will remain in Palo Alto, California, as part of HKS's Hospitality Group.
- REID architecture and 3D Architects are merging their practices to create one of the 10-largest design firms in the United Kingdom. The combined company will have 320 employees. *J.M.*

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For and about the emerging architect

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It's always gratifying for us at archrecord2 to find innovative design turning up in surprising places and being formed from unexpected materials. This month, archrecord2 catches up with De Leon + Primmer, a firm adding to the evolving built environment of Louisville. We also reveal a winning competition for a listening room constructed of cardboard. Go to our Web site to meet other talented young designers in Design, Work, and Live, and join the conversation in Talk. ONLINE: *To join the conversation in Talk and respond to our featured question this month, "Are intern salaries fair?," visit the "Emerging Architect Issues" area of* ***construction.com/community/forums.aspx****.*

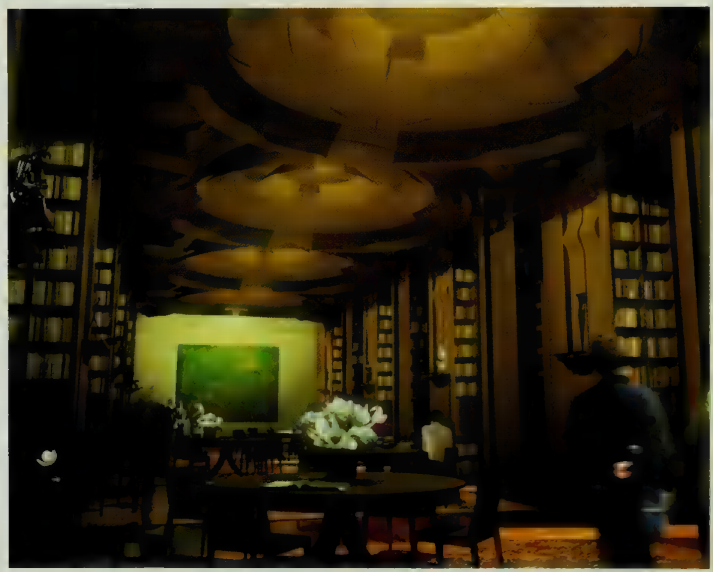
Design

De Leon + Primmer Architecture

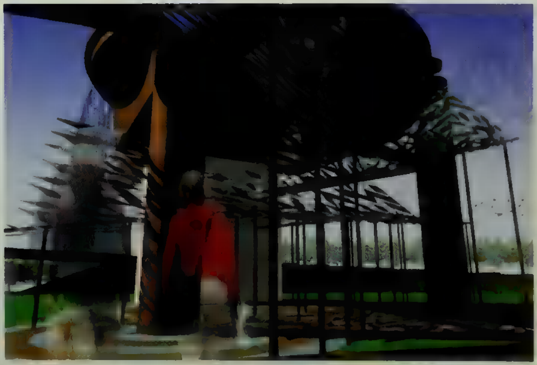
A flurry of recent commissions validated the decision of the principals of Kentucky firm De Leon + Primmer Architecture to return to Louisville after relocating to Charlotte, in nearby North Carolina. Often referred to as a "boomerang town," a place from which people leave, then feel compelled to return, Louisville proved to have the right combination of open-mindedness with a somewhat undefined identity, which the principals believe gives them opportunity to develop new ideas. After trying Las Vegas out, where they ran the design office for a large engineering firm, and then Charlotte, "friends and clients kept calling us back to Louisville," says principal L. Ross Primmer.

For Primmer and Roberto de Leon, selecting an accessible and emerging market was an essential decision in their careers. While most of their fellow students at Harvard Graduate School of Design were planning to stay in Boston or move to New York after graduation, Primmer researched emerging markets—"smaller cities that were transitioning from industrial to service-based economies," he says. He believed such a market would allow them greater access to the kinds of projects that interested them. "We wanted to work in a community where we could have an impact."

After working for Bravura, a well-regarded midsize regional firm, Primmer and de Leon decided to open an office together. "We were each other's best critic," Primmer says. They quickly developed a reputation for working well with nonprofits and arts groups, figuring out ways to get the most out of limited budgets and commonplace materials. "There are not a lot of high-end retail spaces or sleek bars in this market," de Leon says, "so we have to find other kinds of clients, and we ended up with the kind we really wanted." After returning to the city, the firm recently completed a multipurpose building for Yew Dell Gardens, a nonprofit horticultural education center outside Louisville. They renovated a mid-20th-century kit barn from Sears Roebuck, and added a contempo-

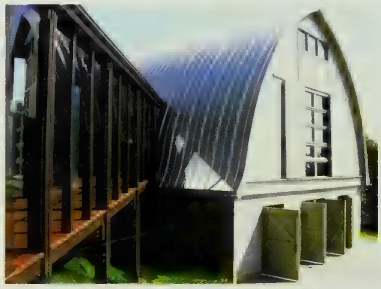


Center for Interfaith Relations, Louisville, unbuilt
Renovation and addition of a multiuse urban resource for the study of all faiths includes 9,500 square feet of renovation and new construction.



Big Four Bridge Pavilion, Louisville, unbuilt
This 5,500-square-foot public venue/civic gateway is a schematic design for the final construction phase of the Louisville Waterfront Park.

Shelby Street, Louisville, 2007
A new live/work building within an area of rapid urban renewal responds to a diverse context of historic shotgun houses, early-19th-century brick storefronts, and metal warehouses.



Yew Dell Gardens, Crestwood, Kentucky, 2006
This 4,800-square-foot renovation and addition is the first component of a multiphase program to facilitate the public use of an arboretum and gardens founded in 1940.

rary addition using traditional tobacco barn builders. Emphasizing the need for collaboration and consensus building, Primmer underscores the importance of learning to work with nonprofit boards of directors. "You have to be an advocate for the cause as well as a steadying presence, because many boards have a quick turnover," he says.

Current projects include a master plan for Yew Dell, a pavilion at Louisville's Waterfront Park; the design of a new park overlooking the Ohio River in the southwestern section of the city; as well as residential projects and a new live/work building that will house their office, a workshop, and apartments. The live/work building draws on the warehouses, 19th-century brick commercial buildings, and shotgun houses that surround the site.

Though they recently hired three interns, two recent graduates from the University of North Carolina at Charlotte and one from the University of Kentucky, de Leon and Primmer plan to maintain a small office, with a maximum of 10 people. "We want the office to continue to be very hands-on," de Leon says. "We always want to maintain a sense of intimacy with the work, to maintain the rigor." *Alan G. Brake*

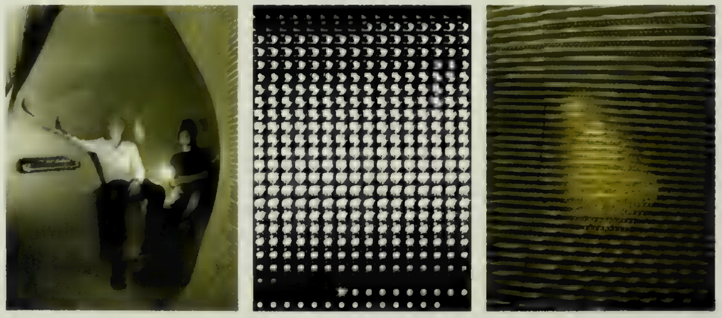
For additional photos and projects by De Leon + Primmer, go to **architecturalrecord.com/archrecord2/**.

Work

Mafoombey explores the acoustics of cardboard

Martti Kalliala and Esa Ruskeepää were college roommates while attending the architecture school at Helsinki University of Technology in Finland. The two students began to experiment with cut corrugated cardboard when they entered the open-to-all Habitare design contest at the University of Art and Design in Helsinki in 2005. The competition asked for a small space for listening to and experiencing music within the set dimensions of 2.5 cubic meters (88 cubic feet). Thus was born Mafoombey, a space for music.

Kalliala and Ruskeepää chose to work with cardboard for its aesthetics, acoustics, low cost, and mass-production capabilities, after turning away from other materials such as recycled carpets. "We decided to use the whole volume and make a free-form space within it," said Ruskeepää. "We also wanted to use a cheap material that could be stacked to make a huge pile."



Esa Ruskeepää and Martti Kalliala (above left) in their Mafoombey project. The corrugated-cardboard listening room is composed of 720 hand-cut pieces of cardboard.

The structure consists of 720 hand-cut pieces of cardboard sliced horizontally, then stacked on top of each other with no adhesive. It was designed with the help of architect friend Martin Lukasczyk, using 3D modeling and scale models. The space includes a sitting area for two to three people and a DVD player to play music. Energy-saving lights and surround-sound speakers are built into the 360-layered structure, with one central wire leading out to plug in for electricity.

The cardboard was donated to the students from Finnish paper manufacturer Stora Enso, in whose factory the students cut the pieces with a controlled knife cutter one-by-one. The design won the competition and was built, becoming the first built project for the 26-year-old architects.

Mafoombey has garnered the emerging architects international acclaim. The project was highly commended at the Architectural Review Awards for Emerging Architecture in the U.K. in 2006 and was the fourth-place nominee in 2005 for the Nordic competition, the Forum AID Prize, issued by *Forum AID* magazine in Sweden, placing alongside actual buildings such as Zaha Hadid Architects's Ordrupgaard Museum extension in Gentofte, Denmark.

So far, only one version of Mafoombey has been built, but collectors from Sweden to Japan have expressed interest in purchasing Mafoombeys of their own. The young architects also have plans to apply the corrugated-cardboard material to build furniture or for use as an acoustic insulating in lecture halls.

The three have been busy building their international resumes. All of them worked at Finnish firm Pekka Salminen in 2005 (where Lukasczyk still works). Kalliala worked at Atelier Peter Zumthor Architects, in Switzerland, and with OMA in the Netherlands for a year before returning to Helsinki to finish his degree. Ruskeepää spent time in the New York office of OMA for a semester before returning to Finland. Both students will graduate this fall. After graduating, Kalliala and Ruskeepää plan to design more projects together, enter more competitions, and see where the future of cardboard lies.

"Maybe one day we will establish a real firm," says Ruskeepää, "but right now, it is important for us to work in really good firms and get a lot of international experience. If we have a firm, we want it to be as international as possible." *Dianna Dilworth*

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Calling a truce in the style wars over government buildings

Critique

By Robert Campbell, FAIA

Thom Mayne's courthouse in Eugene, Oregon, came through the Design Excellence program.

"The development of an official style must be avoided. Design must flow from the architectural profession to the Government, and not vice versa."

The words are those of Daniel Patrick Moynihan. They're part of his famous *Guiding Principles for Federal Architecture* (1962), which helped inspire a revolution in government architecture. The revolution was the Design Excellence Program in the General Services Administration (GSA—sorry, it's hard to write about government without bogging in multisyllables). From 1994 to 2005, under the GSA's chief architect, Ed Feiner, the program tried to choose the best architects in the country for the design of courthouses and other federal buildings.

Full disclosure: I've been a so-called "peer adviser" to the Design Excellence Program since its inception, one of dozens of people around the country who are occasionally asked to help the GSA select an architect or to review an evolving design.

But getting back to Moynihan's dictum: I once heard Feiner phrase it another way. "We don't decide what is good design," he said. "We ask the architects to tell us."

But that begs an obvious question. Which architects do you ask? It's a conundrum. By asking some architects and not asking others, is the GSA deciding, de facto, what good design is?

That conundrum was the heart of a national conference in Washington, D.C., in June. Entitled "Function, Form, and Meaning in Federal Courthouses," it was held, ironically, in the pompous, disorienting interior wasteland that is the Ronald Reagan Building (not a product of the Design Excellence Program).

The conference was supposed to look back over the 13 years of Design Excellence, using courthouses as a building type case study, and figure out what worked and what didn't.

Disclosure again: I was the keynote speaker at this conference. I'm not about to repeat my remarks (I tried to argue every side of every issue, just to throw everything on the table). Instead, I'd like to address the real question about this conference: Why was it held?

A hidden cabal?

It was held, I think, in an effort to clear the air of a persistent rumor. Many people suspect there is a hidden cabal that's been trying to bully the GSA into abandoning contemporary architecture in favor of "traditional" or "Classical" buildings, perhaps fully decked out with theatrical domes, pediments, and Grecian colonnades.

Rumors like that get around for a reason. To understand them, you have to go back to a series of events that began with the resignation of chief architect Feiner more than two years ago.

Before Feiner, before Design Excellence, the best architects seldom applied for GSA work. It was assumed the GSA wasn't interested in architectural innovation or excellence. Since World War II, most government buildings had been bland, generic, unimaginative. All buildings are billboards for the values that created them, and these shouted "bureaucracy." That bad period, it's worth noting, was an exception in American architectural history. From the one-room brick courthouses of Colonial days through the so-called WPA Style of the 1930s, with its masterful Art-Deco and Stripped Classical post offices, American government buildings before World War II were usually a source of architectural pride.

For almost two years after Feiner resigned, the government failed to appoint a new chief architect. It was widely assumed that the GSA was deliberately letting Design Excellence die. But why? Was there pressure from conservative judges? From some senator or committee? From old-line architecture firms? From the White House? Nobody claimed to know.

Then, at last, came the news that Thomas Gordon Smith, a professor at Notre Dame, would be the new chief architect. Whether Smith was actually appointed (as I believe he was), or whether the announcement was merely a Washington trial balloon, there was flak from the architectural community. Soon it was announced that, no, Smith would be merely a consultant to the program. The new chief architect would be Les Shepherd, a Modernist who had long served as Ed Feiner's second-in-command.

Contributing editor Robert Campbell, FAIA, is the architecture critic of The Boston Globe.

Critique

Thomas Gordon Smith would have been an astonishing choice as chief architect. He came to Notre Dame as chairman of architecture in 1989, where he created the only major school in this country that teaches traditional Classical architecture. Presumably, he would have led the GSA toward that same goal.

Anyone who, like me, writes about architecture for the general public knows that most people love traditional architecture and prefer it to contemporary. Everyone in my home city of Boston seems to know that in a 1976 Bicentennial poll of architects and historians, the Modernist Boston City Hall was named the seventh-greatest work of architecture in American history. Boston City Hall is so widely disliked (except by us architects) that the current mayor wants to tear it down and start over.

An architectural language

I find it increasingly hard to get very excited about these style battles, and I suspect a lot of people feel the same way. Thomas Gordon Smith spoke at the conference, and he sounded entirely sane. (As one nationally known architect said to me on the way out of the hall, "The dragon turns out not to be such a dragon.") He presented Classicism as an architectural language of well-understood conventions, a language that can and should be used inventively. I've visited his school and liked the student work.

I suppose you could make the analogy with English, another language of conventions in which it is, nevertheless, possible to write original poetry. If you stretch the English language, or the language of architecture, too far too fast, what you get is an uncomprehending public. As Charles Moore put it, avant-garde architecture can be like Esperanto—an invented language understood only by a small international claque of appreciators.

In my talk at the Washington conference, I showed images of some of the recent courthouses the GSA has built. And, in fact, they come in many styles, some of them pretty conservative, including a couple of deep bows to neo-Georgian or Southwest adobe. The latter were obeying another of Daniel Patrick Moynihan's behests: "Specific attention should be paid to the possibilities of incorporating … qualities which reflect the regional architectural traditions of that part of the Nation in which buildings are located." Of all the GSA courthouses, only Thom Mayne's in Eugene, Oregon, is anything you could call far-out. And one of the Eugene judges spoke to us, too. He was in love with his building.

I ended the day feeling less than inflamed by the taste war. Do we really have to make a religion out of any one approach?

Modernism in architecture was clearly a religion, in the sense that it was based on an a priori belief system rather than on pragmatic experiment. The world is full of systems like that. Freudian psychoanalysis and astrology come to mind: both systems of belief, like Modernism, in which a single internally coherent system is assumed to govern more or less everything. The more strident aspects of today's New Urbanism, with its ideology of the so-called "Transect," can sound a lot like another such belief system. So can Classicism. Or Pugin's Gothic.

For me, a keystone experience was that of living as a student for three years in a building called Lowell House at Harvard. Lowell House is exactly what Modernists rebelled against: a sort of oversize, underdetailed, cupola-topped version of a British redbrick Georgian country house, a stage set for the lives of students (all male, of course) who were regarded as the cultural descendants of the robed undergraduates of Oxford and Cambridge.

Richard Meier's Phoenix courthouse is another Design Excellence project.

Harvard president A. Lawrence Lowell, for whom the building was named, was a bigot who established a Jewish quota at Harvard and, as chair of a blue-ribbon panel, sent the Italian immigrants Sacco and Vanzetti to their needless deaths. You can read Lowell House as the architectural embodiment of his Anglophile bias. Buildings are always message bearers. But I've never been able to persuade myself that life would have been better if Walter Gropius had arrived at Harvard 10 years before he did and had insisted that Lowell House be designed in the International Style. Lowell was, and is, a delightful, functional, and beautiful place to live.

An architectural agnostic

There is room in America for different kinds of architecture. Any one of them can be done well or badly. We don't have to make a fetish of either the past or the future. In any architectural language, old or new, you can be inventive and functional on the one hand, or form-frozen and dysfunctional on the other. Of course, you have to reinvent your language, just as Palladio, faced with new programs and sites, reinvented the language of the Romans he idolized. Or as did Jefferson, when he branded the Pantheon on the University of Virginia. Or Corbu, when his memory of whitewashed shapes on the Greek islands led him to Ronchamp.

I've turned into an architectural agnostic. I don't believe in any set of principles. Or better, I believe in everything. We're never going to have another dominant style. There ain't gonna be no common language. The information revolution makes too many options available to everyone. Architects and clients should be able to use any architectural style they like, as long as it's fresh and fitting and solves the real problems.

You do have to wonder, though, exactly what will be the role of Smith, now the one and only "GSA Architecture Fellow." I guess we'll find out. Is he indeed the product of some conservative political move behind the scenes? Should there be, perhaps, an equal-and-opposite adviser with a different point of view?

I'll end as I began. Another of Moynihan's Guiding Principles says this of federal architecture: that it must be done "in an architectural style and form which is distinguished and which will reflect the dignity, enterprise, vigor and stability of the American Government."

Four nouns chosen as a poet might choose: You can't say it any better. ■

ONLINE Should Thomas Gordon Smith have been appointed chief architect of the GSA? Respond at ***architecturalrecord.com/community/critique***.

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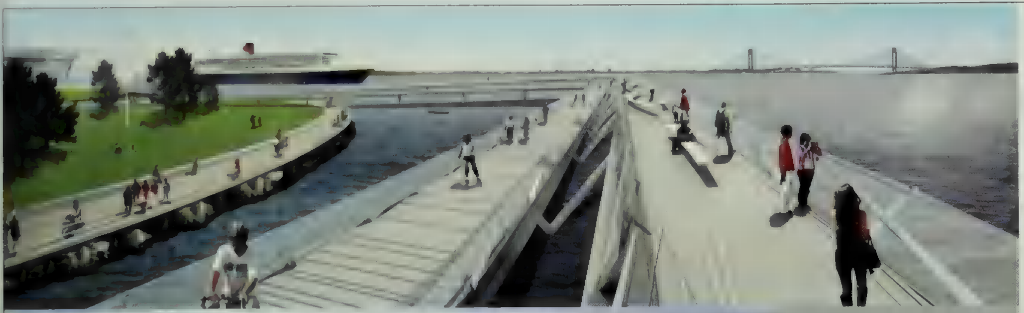
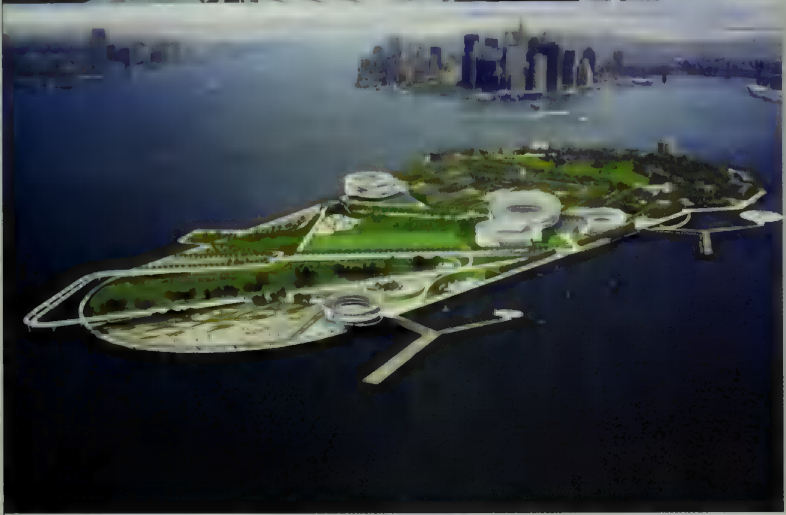
Five variations on the theme of Governors Island

Exhibitions

By John Gendall



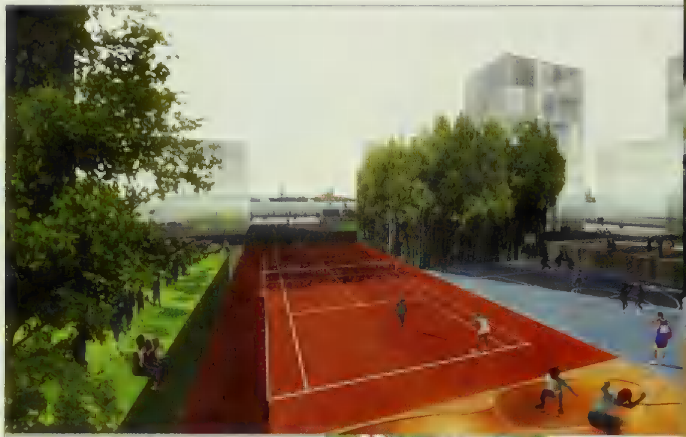


Hargreaves stretches a promenade out from the island's south end (above) and creates axes pointing toward iconic views (left). Field Operations emphasizes the island's native ecologies (below).

The Park at the Center of the World. *At Center for Architecture, New York City, through August 25, 2007; Building 110 on Governors Island, through September 2, 2007.*

Though barely 800 yards from Lower Manhattan, Governors Island, in New York harbor, suffers from obscurity and neglect. First established by the British in 1698 for the "benefit and accommodation of His Majesty's Governors," it served from 1783 to 1996 as a post for the U.S. military and Coast Guard but is now consigned to hosting their derelict buildings. Access to the 172-acre island has been limited to intermittent ferry service by special appointment, so even since the island was decommissioned, few New Yorkers have ever been there.

The northernmost 22 acres of the island are a designated National Monument, protecting the early-19th-century fortifications there. In 2003, after years of failed proposals for the site, including casinos and a United Nations campus, the federal government transferred the remaining 150 acres to the State of New York at a cost of $1. The Governors Island Preservation and Education Corporation (GIPEC), which maintains control of this section, issued a Request for Qualifications in 2006, hoping to jump-start development of the island. The proposals of the five short-listed teams—Hargreaves Associates/Michael Maltzan Architecture; Field Operations/WilkinsonEyre; Wallace Roberts Todd (WRT)/Urban Strategies; REX/Michel Desvigne; West 8/Diller



REX proposes to grid the island, providing space for activities such as tennis or gardening (top left and right). WRT envisions ample park and recreation areas (bottom right). A "vertical landscape" proposed by West 8 would define the island's south end (bottom left).

Scofidio + Renfrew/Rogers Marvel—selected from a group of 29 submissions, are now on display at the Center for Architecture in New York and in Building 110 on Governors Island.

Establishing and reinforcing the island's visual and programmatic connections to the city, landscape architects Hargreaves Associates proposed four landscape typologies—athletic fields, beach, perennial gardens, and a meadow of grasses and pine—separately delineated by pedestrian axes that open up sight lines toward iconic views. Surrounding these areas, a promenade along the island's entire perimeter creates new edge conditions. Other proposed features, such as plazas, gardens, and Michael Maltzan–designed buildings for cultural programs, animate the procession along this stretch and emphasize views outward. The strength of this proposal by Hargreaves, designer of such large urban parks as San Francisco's Crissy Field, is the balance between its promise to connect with the city and its flexibility to accommodate Governors Island's future needs.

By contrast, New York–based landscape architects Field Operations, with WilkinsonEyre, a London architectural firm, casts the island and its natural features as a foil to the city. With a single landscape typology, this team creates a series of mounds and pools on Governors' south end that accentuate the changing relationships between the topography and surrounding body of water. When daily high tides flow in, only the mounds and the horizontal plane of an elevated promenade remain exposed, while the supports become submerged beneath the water. With thermal pools, botanical pavilions, and a marina, this program is focused on the experience of the wind, water, and changing environment.

Dominating the proposal by REX (an OMA spin-off in New York) and landscape architect Michel Desvigne of Paris is a declaration in bold letters: "This is not a landscape proposal. This is a development strategy." In the spirit of OMA principal Rem Koolhaas, this is a team of self-conscious provocateurs. They call for gridding the island, a move inspired by the Jeffersonian grid that allowed westward expansion. REX hopes this grid will accommodate what it insists is the only viable intervention here: investment by developers. The need to improve the island's appeal and accessibility emerges in this scheme, but obviously a gridded island of development already exists, a mere 800 yards away. Manhattan's grid works because of the urban engine (with economic, demographic, infrastructural, and other forces) fueling it. And Jefferson's grid relies on its own slew of cultural, political, and religious forces. Though the proposal is compelling, it remains doubtful that a city park can or should be "settled" following either of these gridded paradigms.

Meanwhile, WRT of Philadelphia proposes a traditional green city park. The plan orients itself around a large meadow with most program around the perimeter. The large firm's design is a reasonably pleasant—but formulaic—response to a unique condition.

Taking a radically different approach, West 8 (Dutch landscape architects), and Diller Scofidio + Renfro and Rogers Marvel (both New York architectural firms), propose sculptural landforms at heights reaching 180 feet and with names like "Babylonic Hill" and references to "return to lost paradise," evoking a landscape theme park. The forms resemble ziggurats or are translucent bulbous domes, and house, for example, art galleries, greenhouses, and a floating oyster bar. Three thousand custom wooden bicycles and lounge chairs would be available free of charge for park visitors.

With its physical autonomy and absence of a residential program (due to current guideline restrictions), the site lacks the sort of casual, improvised use that makes other urban parks vibrant. The two teams that most effectively capitalize on this condition are Field Operations, with its emphasis on the island's natural features and "otherness" in confident juxtaposition to Manhattan, and Hargreaves, with its strong connections to the city. ■

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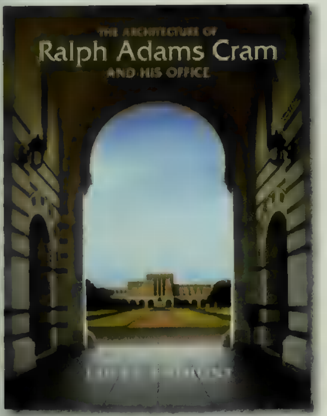
Jockeying for places in last century's design pantheon

Books

The Architecture of Ralph Adams Cram and His Office, *by Ethan Anthony. New York: W.W. Norton, 2007, 256 pages, $60.*



Ralph Adams Cram (1863–1942) was as well known in his day as his contemporary Frank Lloyd Wright. He was the most significant ecclesiastic designer since Richard Upjohn, author of 26 books, and the designer of everything from war memorials to skyscrapers. Yet, if this High Church Anglican son of a Unitarian minister, namesake of Emerson and John Adams, is remembered at all, it is as a quixotic medievalist and erstwhile partner of Bertram Goodhue.

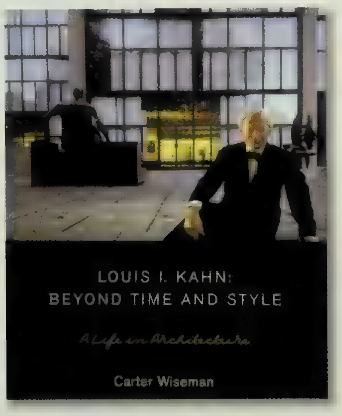
Ethan Anthony, who went to architectural school in Boston and had never heard of Cram, wondered how an architect who did so much—and so well—could be so forgotten. Hired by Cram's successor firm, HDB/Cram and Ferguson, Anthony immersed himself in the work and archives of America's greatest Gothicist and preeminent campus planner. His book is an attempt to restore *Time* magazine's 1925 "Man of the Year" and the first chairman of the Boston city planning board to his rightful place in the architectural pantheon.

Cram's mentors were Pugin and Ruskin, and for him, architecture was a moral crusade. Unlike Gropius's and Le Corbusier's, Cram's cure for modern society's ills was "a return to small communal villages," inspired by both the Middle Ages and early New England.

Anthony's book asks us to reconsider Cram's remarkable body of work: West Point, in upstate New York; Princeton University, in New Jersey; and St. Thomas Church and the Cathedral of St. John the Divine, in New York City. No one did the picturesque tower and cloister better. Baptists, Unitarians, Swedenborgians, and Catholics craved Cram's revivified Gothicism, but he was an equally adept master of Georgian, Byzantine, Spanish Baroque, and Romanesque modes. At Rice University, in Houston, Cram developed a new collegiate vocabulary that was both traditional and modern.

Cram's career could fuel an academic industry like that spawned by Wright scholars, perhaps with Anthony's solid introduction as a foundation. Sadly, Cram's art deserved some stunning new photography instead of the often frumpy, black-and-white images assembled from the firm's files. Even so, this volume reacquaints us with Cram and argues for a definitive study of the greatest architect America ever forgot. *William Morgan*

Louis I. Kahn: Beyond Time and Style: A Life in Architecture, *by Carter Wiseman. New York: W.W. Norton, 2007, 284 pages, $60.*



Carter Wiseman's affectionate and astute biography of Louis I. Kahn (1901–74) might come as no surprise to readers familiar with Wiseman's portraits in *Twentieth-Century American Architecture* (2000). That survey showcased Wiseman as fiercely acerbic in his judgments of architects from Wright to Eisenman, with only Kahn winning nearly unqualified praise ("a magisterial body of work"). In fact, the earlier book, which praises Kahn for "his ability to transcend period and style," explains the confounding title of this biography—what architect practices "beyond time?"

Once past the title, the reader gets an exquisitely written, handsomely illustrated, multidimensional biography that judiciously balances the drama of Kahn's undisciplined romantic life with the extraordinary discipline of his professional life. While forthrightly acknowledging Kahn's foibles as an architect, his notorious slowness in completing work, and his questionable construction knowledge, Wiseman tracks with meticulous care Kahn's singular ability to synthesize ancient and contemporary architecture.

Particular credit should be given to the biographer for noting that Kahn's romantic affairs with female architects in his firm were intellectual as well as sexual adventures, citing clearly the major influence Anne Tyng had on Kahn's design for the Yale Art Gallery. The brutal psychological irresponsibility Kahn demonstrated toward his wife, lovers, and children is noted but not luridly exploited. Kahn's warmth and humanity are depicted in his association with Jonas Salk, resulting in the Salk Institute for Biological Studies, in San Diego, arguably Kahn's greatest achievement. Wiseman gradually and seamlessly transitions from the early days of the Kahn/Salk friendship to the dramatic unfolding of the architectural masterpiece that simultaneously evokes ancient Greece and contemporary California, an architecture transcending avant-gardism or nostalgia, a construction for the mind and soul in exquisite equilibrium. *Norman Weinstein*

Eliot Noyes, *by Gordon Bruce. London: Phaidon Press, 2006, 239 pages, $70.*

Like many of the architects and designers who came to prominence in the U.S. in the post–World War II period, Eliot Noyes (1910–77) was a child of privilege, or at least of lineage. Because his father was an academic, Noyes didn't enjoy the wealth of a Philip Johnson or an Edward Larrabee Barnes. But descended from Mayflower New Englanders, he was educated at Philips Andover, Harvard College, and the Harvard GSD. He worked for Gropius and Breuer before going out on his own to design houses, office buildings, typewriters, and other products. He also directed the industrial design department of the Museum of Modern Art in New York in the 1940s.

Noyes was one of the first architects to practice "institutional branding," developing total corporate images that identified such industrial giants as IBM and Cummins Engines by their architecture and products, down to the toilet-paper dispensers in their bathrooms. Critical of the "design schizophrenia" that he initially encountered at IBM, he replaced messy variety with design consistency. Noyes's influential typewriter designs for IBM, projects that Gordon Bruce compares to Marcello Nizzoli's Olivetti products, are the equals of much of what came out of Europe in the 1960s.

Noyes also designed corporate office complexes, buildings that today look not only dated but rather banal (the quintessential "IBM card" aesthetic). His work for Mobil, including [illegible]typical filling stations as well as the gas pumps, was among his best. I still remember how cool those pumps looked in the 1960s.

Bruce, who worked for Noyes, has written a complete, engaging, and detailed survey of Noyes's contribution. The text approaches hagiography but, thankfully, doesn't cross the line. Unfortunately, his book is printed in Courier font, like that found on the typewriters Noyes designed, a mistake that makes the book hard to read.
Thomas L. Schumacher

Skidmore, Owings & Merrill, SOM Since 1936, *by Nicholas Adams. Milan: Electa, 2006, 338 pages, $45.*

Skidmore, Owings & Merrill (SOM) was, at one point, the largest architectural firm in the world. It all started with two brothers-in-law, Louis Skidmore and Nat Owings, working on the Century of Progress Exhibition in Chicago in 1936. They added an engineer, John Merrill, founded a firm, made it grow, and made history, as detailed in this hefty, boxed tome. Yet, as Nicholas Adams avers, SOM has been marginalized in major histories of the Modern movement. It was disparaged as a corporate mill churning out Taylor-made buildings. Frank Lloyd Wright called the firm "Skiddle, Own-More, and Merrily," and one of their Chicago nicknames in the 1960s was "The Three Blind Mies." Adams believes SOM deserves better, which is the raison d'être for his book.

The firm's most important designers were Gordon Bunshaft in New York, Chuck Bassett in San Francisco, and Bruce Graham and Walter Netsch in Chicago. This book concentrates on the work these partners completed between World War II and the early 1980s. Most of the photos are in black-and-white; it was a black-and-white era. Adams argues for the seminal importance of a few buildings, like Manhattan's Chase Manhattan Bank and Lever House, two of the best curtain-wall towers of the 1950s, and of the United States Air Force Academy Chapel in Colorado Springs, Colorado, all buildings that are included in anthologies of the period. Adams also gives us some interesting insights and anecdotes about patronage and the influence of clients on SOM's work. In the case of Lever House, the client provided the building's basic idea.

Nicholas Adams
Skidmore, Owings & Merrill
SOM since 1936

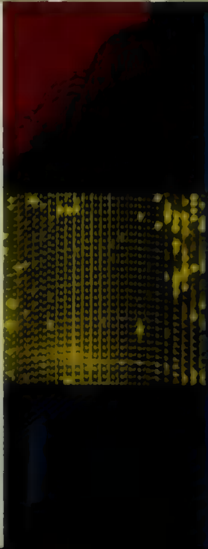
Unfortunately, Adams's text—like his depiction of Gordon Bunshaft as a kind of aesthetic sponge and eclectic—is often weak and pedestrian, thereby reinforcing the reputation of SOM as a firm for and of the man in the gray-flannel suit.
T.L.S.

Glass House, *edited by Toshio Nakamura. New York: Monacelli Press, 2007, 256 pages, $95.*

Can you imagine 20th-century American architecture without Philip Johnson (1906–2005)? No architect was more controversial and celebrated, though as Johnson was the first to admit, many were better designers. Johnson was at the forefront of every new movement—and of its demise. His 1932 *International Style* exhibition at the MoMA, assembled with architectural historian Henry-Russell Hitchcock, launched the Modern movement in America. "I was interested in the propaganda, the presenting of the International Style. It was a religion that we all shared," Johnson once told me. But when the Modern movement became architecture's ruling dogma, he abandoned it and in the late '70s inaugurated the Postmodern movement with his Chippendale-topped AT&T Headquarters. A decade later, he discarded Postmodernism for yet another "ism"—Deconstructivism.

His Modern masterpiece, arguably the best work of his career, was the Glass House, completed in 1951. Unlike Wright, who was constantly rebuilding and refurbishing Taliesin, Johnson made no changes to the Glass House after its completion or to any of the other structures he subsequently designed for his New Canaan, Connecticut, estate. "They are artistic statements. You don't go back and repaint a picture," he explained. For Johnson, the consummate aesthete, architecture was art, pure and simple.

Fittingly, this large-format volume, with excellent text by Toshio Nakamura and wonderful photographs by Michael Moran, is a work of art. It showcases Johnson's transparent cube in all seasons and in all moods—in blazing fall colors, in wintry black-and-white, through a long lens, and in myriad details. The book reproduces original drawings and devotes its final pages to other buildings on the estate: a guest house, a Classical folly, an underground sculpture gallery, a painting gallery, a Ronchamp-inspired studio and study, a monument to Lincoln Kirstein, and "Da Monsta" gatehouse of 1995. The estate, with the Glass House at its center, served Johnson as a canvas and laboratory for testing ideas; it stands today as a summary of postwar trends in architecture.
Andrea Oppenheimer Dean



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Can project alliancing agreements change the way we build?

Practice Matters

By Chris Noble

Errors, omissions, inefficiencies, delays, coordination problems, cost overruns, productivity losses—the list of complaints against (and often by) architects and contractors is a long one. The Construction Users Roundtable (CURT) has characterized the difficulties experienced in typical projects as "artifacts of a construction process fraught by lack of cooperation and poor information integration." The historical reasons for this dysfunctionality are many, including a multiplicity of participants with conflicting interests, incompatible cultures, and limited access to necessary information. In an influential 2004 white paper titled in part, "Collaboration, Integrated Information, and the Project Lifecycle," CURT said, "The goal of everyone in the industry should be better, faster, more capable project delivery created by fully integrated, collaborative teams." It is increasingly believed that the achievement of this elusive goal, commonly called "integrated project delivery" (IPD), will be facilitated by the emerging technology of building information modeling (BIM).

While a number of architects and contractors are experimenting with BIM, the very definition of IPD is unclear to most industry participants. In an effort to remedy this confusion, the AIA California Council (AIACC) recently published a report titled, "Integrated Project Delivery—A Working Definition." The report calls IPD "a project delivery approach that integrates people, systems, business structures, and practices into a process that collaboratively harnesses the talents and insights of all participants to reduce waste and optimize efficiency through all phases of design, fabrication, and construction." A key element of this process, says the report, is early, open, and collaborative participation by designers, constructors, and fabricators "beginning when the project is first conceptualized [and continuing] throughout the full life cycle of the facilities."

Chris Noble, of the law firm Noble & Wickersham, chairs the Contract Documents Committee of the American College of Construction Lawyers.

Project alliancing agreements

The AIACC report does not recommend a specific contractual structure for an IPD project, but it does mention one possible model: the project alliance agreement. This model is also referred to in recent CURT white papers, and it is increasingly mentioned in programs, meetings, and symposia exploring the progress and potential of IPD. While virtually unknown until recently in the U.S., this model has a proven track record in Australia, most significantly in the design and construction of a new National Museum in Canberra.

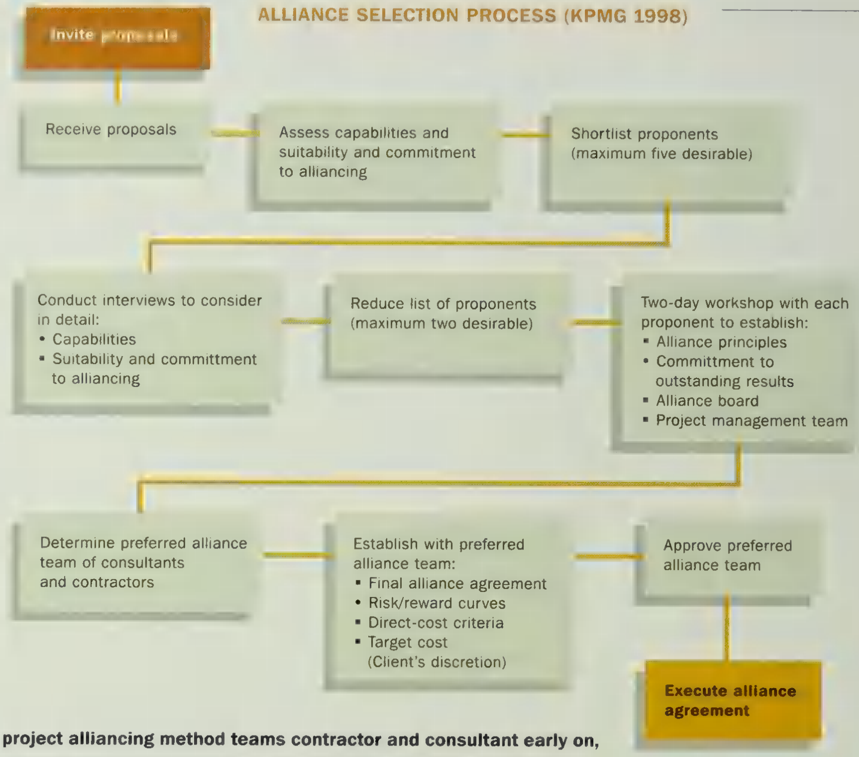
In the National Museum project, the owner and the primary designers and constructors were organized into an integrated group called the Acton Peninsula Alliance, under a single agreement signed by all of them. Alliance members were chosen through a rigorous process in which candidates were evaluated not only on their technical skills, but also on their ability to work effectively in a collaborative environment. The selected exhibition design team was led by a Boston-based firm, Amaze Design. Andy Anway, the president of the firm, has referred to the alliance as "a transformative experience that changed the life of everyone who participated in it."

The alliance agreement had as its goal the alignment of interests for the benefit of the project as a whole. Each alliance member (other than the owner) was compensated on an open-book, cost-reimbursed basis, with a preestablished profit amount approved by all other Alliance members. In addition, all of the members received prenegotiated "Gainshare" bonuses if the project as a whole achieved or exceeded agreed-upon goals, and they all paid prenegotiated "Painshare" penalties if the project failed to meet the goals. There was no expressly stated limit on the reimbursable costs payable to each alliance member, although the owner was not obligated to pay more than the amount of the total project budget to all the other alliance members combined.

The alliance was managed by a leadership team consisting of one senior representative of each alliance member, including the owner. One hundred percent attendance constituted a quorum at each monthly meeting of the leadership team, and all of its decisions had to be unanimous. A trained facilitator, paid out of the project budget, attended many of the meetings to help guide this unusual process.

Personnel of the alliance members were mixed and matched on a "best for project" basis, and problems were solved in a collaborative "no-blame" environment. In order to achieve that environment, the owner and all of the other alliance members agreed in advance to release one another from all liability arising out of the project except for "willful default" as defined in the alliance agreement. This definition excluded "any error of judgment, mistake, act, or omission, whether negligent or not, made in good faith by an alliance member," for which no claims could be made by the owner or any other alliance member either during or after the design and construction process.

The project alliance delivery method was developed for the purpose of overcoming extreme challenges and achieving "breakthrough" results, where "business as usual" performance would not be sufficient. It achieved these goals in the National Museum project, which was completed within a fixed budget and opened on schedule on the 100th anniversary of the Australian Federation. It has also been used successfully in several dozen Australian public works and infrastructure projects, and the government of the province of Victoria has recently promoted it in a detailed *Practitioner's Guide* (available online at www.dtf.vic.gov.au). However, project alliancing has not been used in any other Australian vertical building project since the completion of the National Museum


Invite proposals
Receive proposals
Assess capabilities and suitability and commitment to alliancing
Shortlist proponents (maximum five desirable)
Conduct interviews to consider in detail:
▪ Capabilities
▪ Suitability and committment to alliancing
Reduce list of proponents (maximum two desirable)
Two-day workshop with each proponent to establish:
▪ Alliance principles
▪ Committment to outstanding results
▪ Alliance board
▪ Project management team
Determine preferred alliance team of consultants and contractors
Establish with preferred alliance team:
▪ Final alliance agreement
▪ Risk/reward curves
▪ Direct-cost criteria
▪ Target cost (Client's discretion)
Approve preferred alliance team
Execute alliance agreement

ALLIANCE SELECTION PROCESS (KPMG 1998)

The project alliancing method teams contractor and consultant early on, and provides them with financial incentives for meeting project goals.

in 2001. According to Carey Lyon, immediate past president of the Royal Australian Institute of Architects, possible reasons for this include the reluctance of Australian contractors to give up the adversarial approach that is "built into their business model."

"However," says Lyon, "the use of BIM and integrated project delivery will take away the ability to drive wedges into the information chain. This will open up significant opportunities to redefine contracting, and could lead to wider use of project alliancing."

Adapting the alliancing model

Here in the U.S., it appears that no major owner has taken the plunge by sponsoring a "pure" project alliance on the National Museum model. However, a number of owners have committed themselves to collaborative, single-contract project delivery systems, in which interests are aligned and risks are shared to a greater extent than in traditional contractual structures. One such owner is Sutter Health Care in California, which has been using a multiparty "integrated agreement" for its $6.5 billion building program.

Drafted by Sacramento attorney Will Lichtig, the Sutter agreement seeks to promote collaboration and project success through such methods as early assembly of a core group consisting of the owner, architect, and contractor and an integrated project team jointly selected by the core group; joint management and decision making by the core group; establishment of contingencies and incentive pools shared by both designers and constructors; and application of "lean construction" principles developed and advocated by the Lean Construction Institute. The LCI is a nonprofit group which aims to apply techniques learned in manufacturing to help streamline construction.

While it doesn't eliminate disputes and liability through a "mutual release" such as that found in the National Museum alliance agreement, the Sutter agreement provides for the establishment of a multitiered system of risk sharing for both negligent and non-negligent design errors and omissions. A "deductible" for paying such costs is funded by one of the contingencies, above which the designer is responsible up to a prenegotiated cap, without proof of negligence. Above these combined amounts, proof of negligence is required.

Many of the principles of the Sutter agreement have been adapted and refined in an integrated contract developed by the U.S. offices of the architectural firm NBBJ. Tom Owens, a principal and general counsel at NBBJ, describes the Sutter and NBBJ forms as "alliancing lite." Owens says, "They go about as far in the direction of project alliancing as they reasonably can in the current U.S. marketplace." He freely offers the NBBJ form to owners, architects, and others at www.nbbj.com/access/intdeldraftnbbj.doc.

An integrated contractual approach is being used for a project at the University of Wisconsin that will house the public Wisconsin Institute for Discovery and the private Morgridge Institute for Research. Madison, Wisconsin, attorney Kevin Delorey says that the drafting team started out with something similar to the Sutter form, but over the course of contract negotiations "has departed substantially from that form." As more information becomes available about this innovative project, it may set a new standard for IPD.

Other owners are putting their toes in the IPD water by developing common project conditions that are intended to be incorporated into separate design and construction contracts. This approach is being taken by Yale University and the Hammes Company, a large health-care development consultant. While these documents are intended to coordinate project relationships and reduce disputes, they don't adopt as many of the IPD principles identified in the AIACC report as the Sutter and NBBJ contract forms do.

Integrated project delivery has captured the attention of both the AIA and Associated General Contractors, which are each planning to issue some kind of IPD contract materials within the coming year. According to AIA Documents Committee chair Tim Twomey, "the task group charged with developing the AIA's materials is looking carefully at current examples of IPD contracts, like the project alliance, Sutter, and NBBJ documents, to be sure that whatever is issued by the AIA benefits from the experience of current approaches."

Changing the system

It may ultimately come to pass that integrated project delivery will transform the contentious, litigious, and notoriously inefficient American construction industry, and that it will provide a safe contractual environment for collaboration and the sharing of information through BIM. While some hold out the hope that project alliancing will help to create such a paradise, others are working on more conventional approaches that will move in that direction but can be more easily applied, tested, and learned from in today's marketplace. ■

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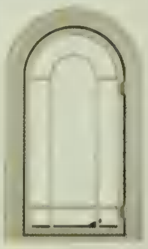

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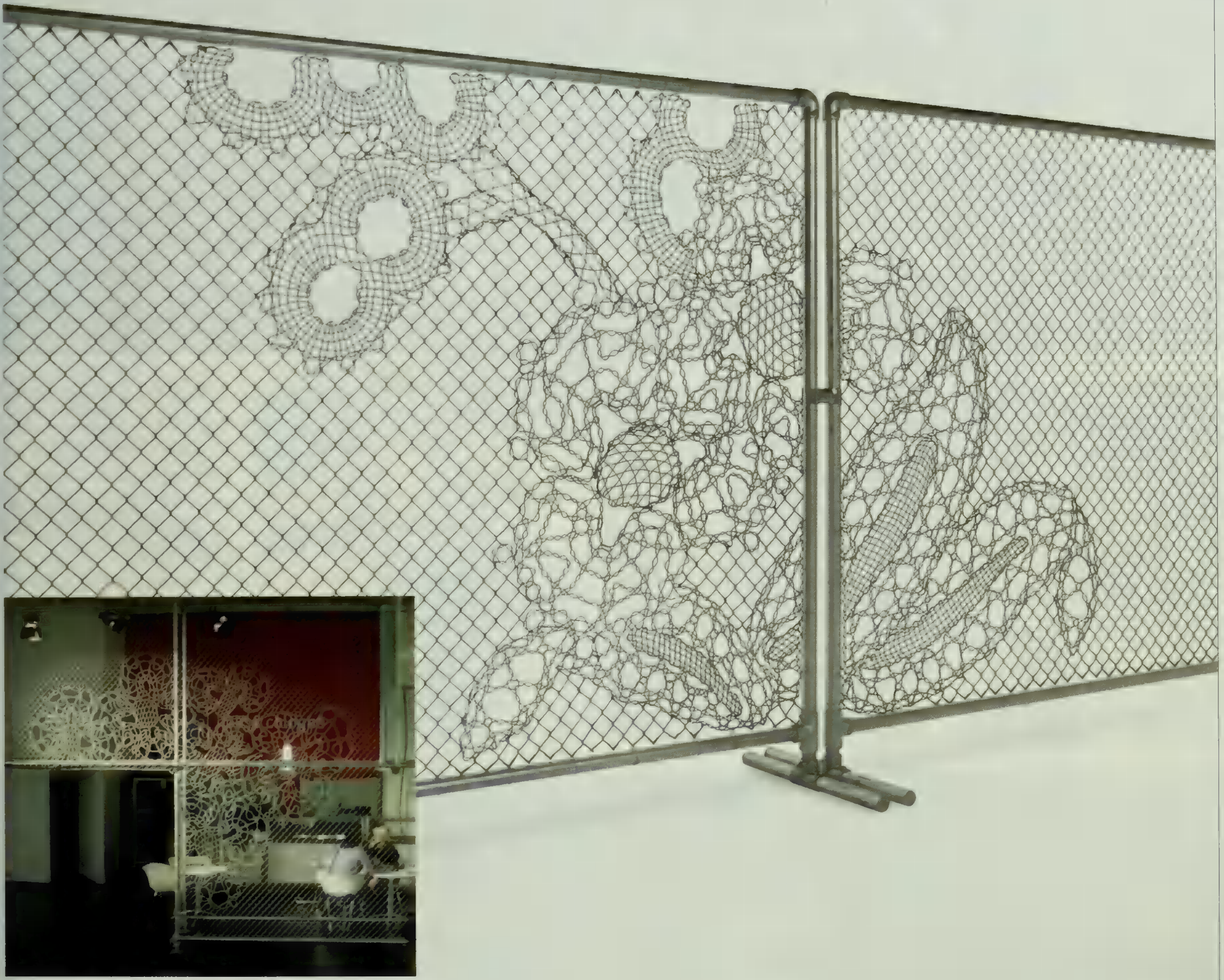

Patterned fences make good neighborhoods

By Rita Catinella Orrell

Without sacrificing function for ornament, Lace Fence is a refreshing take on the ubiquitous chain-link fence. Designed by the young Dutch firm Demakersvan and produced by IDFence in Bangalore, India, the craftily patterned fencing has sparked interest with art gallery owners, retailers, and architecture firms. Designer Joep Verhoeven was first inspired by a makeshift fence-mending job he noticed in his travels. "The question that followed became the source for the concept," he says. "What if you would direct the wire into a more decorative pattern?" The patterns are produced by hand for indoor or outdoor use with the same wire as machine-made industrial chain-link mesh. Designs can be created to help discourage climbers, hide or enhance surroundings, deal with harsh weather, or create a custom look. The company currently produces a minimum of 250 square meters (2,700 square feet) of fencing per month in costs ranging from $105 to $187 per square meter (11 square feet). Demakersvan, Rotterdam. www.demakersvan.com **CIRCLE 200**

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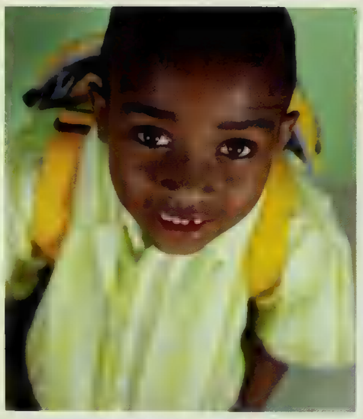

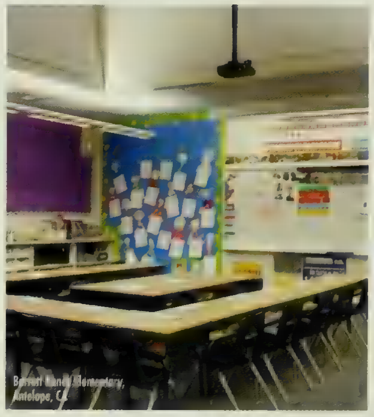
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Trade Show Review Las Vegas • Kitchen & Bath Industry Show

Once largely national in scope, the Kitchen & Bath Industry Show has evolved into an influential international exposition. This May, a record-breaking 44,000 professionals filled three halls of the Las Vegas Convention Center to visit more than 1,000 exhibits representing the world's top designers and manufacturers—including those from North and South America, Europe, Asia, and Australia. This migration of ideas resulted in a merging of European aesthetics and technologies with those from the U.S. *Linda C. Lentz*

1 Inside the box At a room- and people-friendly 55" square x 28" high, the Blue Moon "pool" tub (shown), by Berlin-based designer Jochen Schmidden, features a circular 21"-deep acrylic tub rimmed by a teak or matching deck, plus optional lighting, bench, and stainless-steel clothes stand. Duravit, Duluth, Ga. www.duravit.com **CIRCLE 201**

2 Water toys For color and ingenuity, the Hansa2day and Hansaclear Lux showers can't be beat. The former, a bright saucer-shaped head, tilts to alternate between surge or needle spray. Completely transparent, the latter reveals the water as it flows through and is illuminated by LED hues. Hansa, Norcross, Ga. www.hansa.com **CIRCLE 202**

3 Power wash Designed for electric and induction cooktops, the avantGarde multiMedia Hood integrates 600 cfm ventilation with a high-resolution 17" LCD TV and DVD/CD player. Speakers are front and center beneath the screen; wiring and technical elements are concealed in the chimney. Siemens, Huntington Beach, Calif. www.siemens-home.com **CIRCLE 203**

4 The wow factor The Ono-Highflex kitchen faucet sports a patented spring hose for maximum flexibility with 360-degree swivel. A simple lever switches from filtered stream to pressurized wash, while an elegant flat-topped spout takes care of business as usual. KWC, Norcross, Ga. www.kwcamerica.com **CIRCLE 204**

5 Fool the eye When French designer Jean-Marie Massaud developed his namesake collection he aimed to make the plumbing recede. Thus organically sculpted single-lever basin and bath mixers appear to be—indeed double as—shelves. Water delivery mimics the clarity of nature while keeping its use at bay. Axor, Alpharetta, Ga. www.hansgrohe-usa.com **CIRCLE 205**

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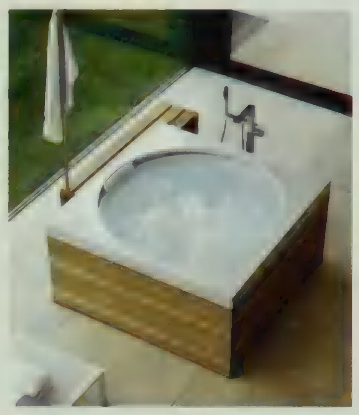

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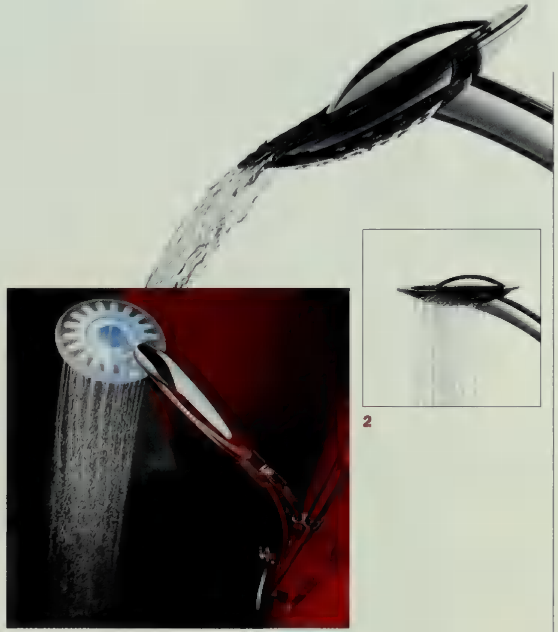

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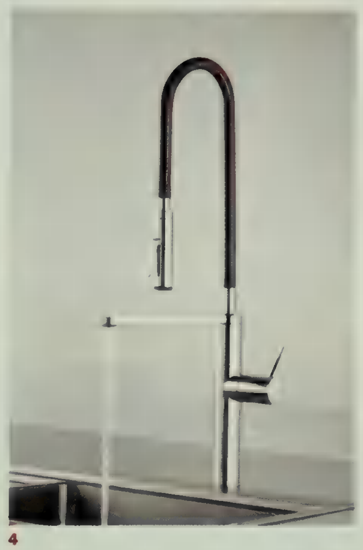

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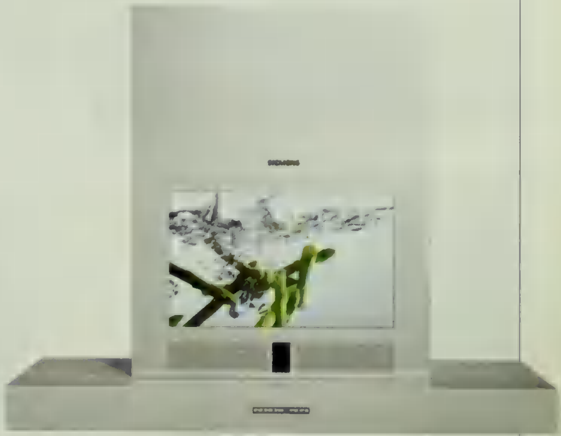

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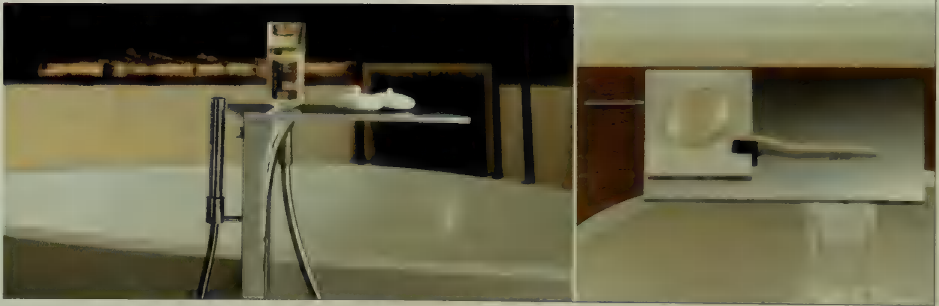

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6 Turkish gems Italian industrial designer Matteo Thun's Water Jewels bath suite comprises a sumptuous material mix including ceramic wall-hung vanities in several sizes that accommodate undercounter or countertop basins available in marble, ceramic, VitrA Solid polyester resin, wood, glass, and blue-enameled terra-cotta. Optional polyester resin or wood drain plates, pierced with floral or triangle patterns, add a touch of exotic charm. VitrA, Suwanee, Ga. www.vitra-usa.com **CIRCLE 206**

7 Above and beyond MasterCool modular refrigeration offers a dual compressor system along with thorough halogen lighting up the sides of the units, simple waist-level touch controls, flush integration, and wireless remote monitoring 24/7. The MasterChef motorized DA 424 V island hood eases placement issues by allowing users to easily vary its height as needed. Miele, Princeton, N.J. www.miele.com **CIRCLE 207**

8 Laundry cum spa Available in stainless steel, white, and Wild Cherry red, the SteamWasher and SteamDryer clean and refresh clothing, rendering it virtually wrinkle free via the units' generator-powered SteamFresh cycles that convert water to steam. Optional base drawers provide storage and height for easy access, while the company's remote monitoring system keeps track of wash and dry status anywhere in a home. LG, Englewood Cliffs, N.J. www.lgusa.com **CIRCLE 208**

9 On a roll Available in stainless steel or chrome for 60" single threshold or 72" x 42" bases in one-, two-, and three-sided configurations, the German-engineered Teutonic shower enclosure features industrial-strength rollers that glide effortlessly along its solid stainless steel track so that any user can slide its 79" high by ⅜" thick, 200-pound safety glass panel. MTI, Sugar Hill, Ga. www.mtiwhirlpools.com **CIRCLE 209**

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Architect: Smith, Hinchman & Grylls Associates, Inc.

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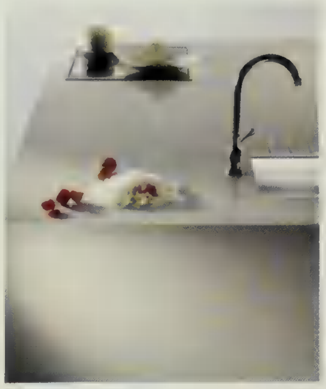

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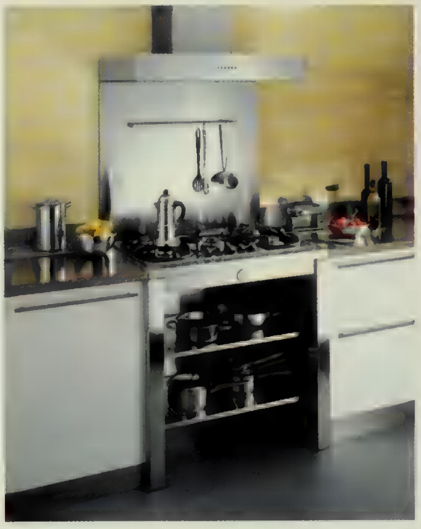

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10 Suspended ventilation The Arc collection of vents pairs with electric Ceran radiant and induction cooktops. Units in plain or etched glossy red, white, or black tempered glass vent through wall or ceiling and operate via discreet touch-controls. Zephyr, San Francisco. www.zephyronline.com **CIRCLE 210**

11 Eastern hues Offering Greenguard air-quality certification and integral Microban protection with NSF 50 certification for food prep, the Silestone Quartz Zen Series targets inner well-being with Japanese-dubbed transcendental shades of white, plum, brown, and gray. Cosentino, Stafford, Tex. www.silestoneusa.com **CIRCLE 211**

12 Go with the flow Exceeding current environmental standards, the FloWise showerhead delivers an impressive 1.5 gpm, using 40 percent less water than typical 2.5 gpm models. Likewise, the FloWise toilet satisfies the EPA WaterSense 1.28 gpf, thus qualifying as a high-efficiency toilet. American Standard, Piscataway, N.J. www.americanstandard-us.com **CIRCLE 212**

13 Fitting in This 125-year-old company based in Emilia Romagna bridges the appliance/furniture gap with its stainless-steel Modular Series, a selection of 24" to 48" gas cook tops, coordinating base cabinet with shelves or drawers, back panel with utensil bar, and adjustable hood. Bertazzoni, Guastalla, Italy. www.bertazzoni-italia.com **CIRCLE 213**

14 Suite dreams DTV II (near left) elevates the WaterTile precedent of version I by adding a 21"-square Ambient Rain overhead shower with ambient LED light patterns, and an integrated sound system with SoundTile speakers (inset) by Polk Audio. The comfortably contemporary Fountainhead Collection (far left) combines elements such as a shelf and mirrored cabinet with internal taps, marble and cast iron lavs, and a trio of vanities in light maple or truffle-stained ash. Kohler Co., Kohler, Wis. www.kohler.com **CIRCLE 214**

For more information, circle item numbers on Reader Service Card.

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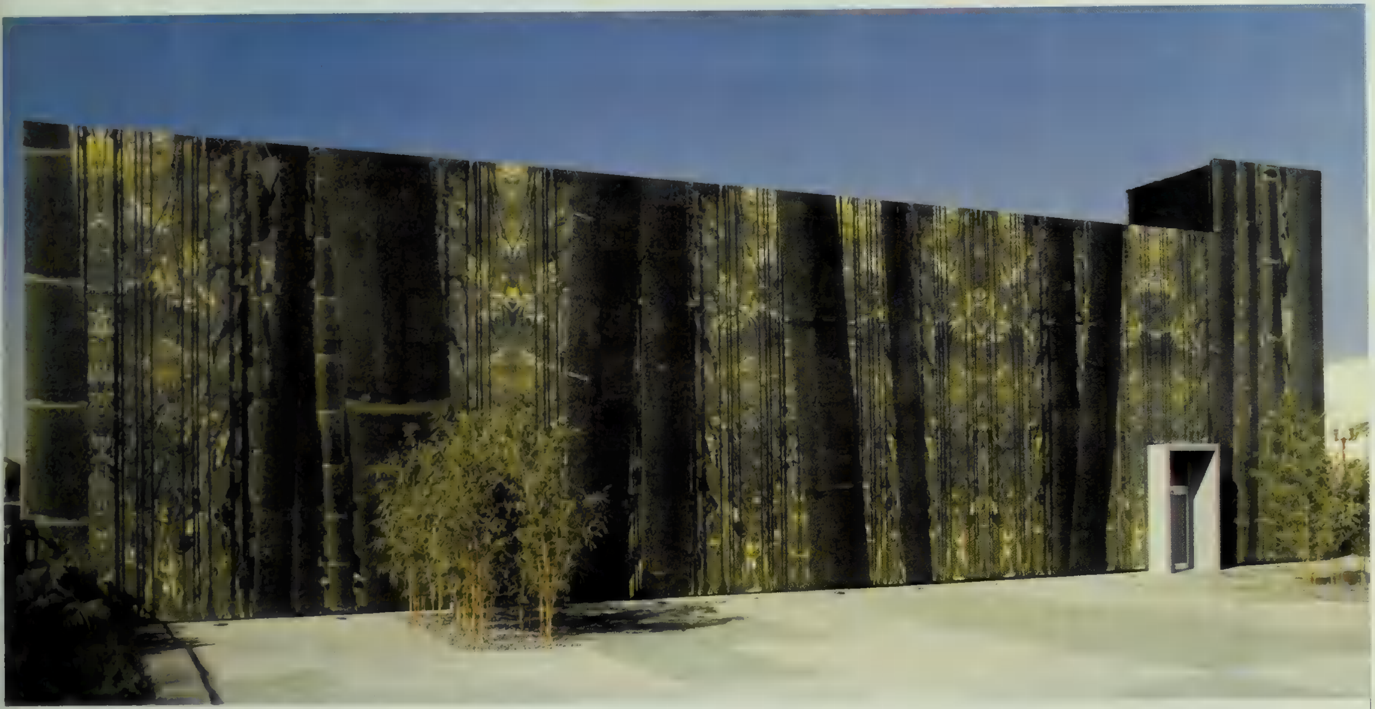

By Christopher Kieran

A different kind of green architecture

More than 1 million Bisazza glass tiles transform the exterior of the Cisneros Fontanals Art Foundation (CIFO) in Miami, Florida. The permanent artwork, which represents a forest of bamboo, covers the entire 4,800-square-foot facade of a 1936 warehouse that reopened in December 2005 as CIFO's offices and exhibition space, and took the AIA Miami Chapter's Award of Excellence for renovation and restoration in 2006.

Ella Fontanals-Cisneros, CIFO's founder, commissioned Miami-based architect René González to create a welcoming space in the city's downtown warehouse district. In an area absent of greenery and dominated by stark, boxy buildings, González wanted to evoke a dense landscape with depth that would contrast with its surroundings. To help him achieve the desired effect, he turned to Italian tile manufacturer Bisazza, with whom he had a strong working relationship, having previously designed the company's "Bamboo White" and "Bamboo Black" patterns.

Although now a monumental mural, the 40-by-125-foot mosaic originated as a graphic composition. The architect layered, flipped, turned, and twisted elements of landscape images, developing a digital design. Bisazza then pixelated the design and assigned a color to each 20-millimeter-square segment. Using more than 200 colors and styles of glass tile, the manufacturer fashioned the mosaic on 4-by-4-foot metal panels at its North American headquarters in Miami. The panels were then transported to the site and screwed onto an aluminum framing system anchored to the concrete wall of the existing facade.

González worked to make the mural as dynamic as possible. "We didn't want something that read as a one-liner," he explains. "It's more about a spatial experience than an iconic image." The abstraction of the design, caused by pixelation, is enhanced by the mosaic's size, which allows it to be read differently from varying distances. "You perceive the image in its entirety from a few blocks away," González explains. "As you get closer, you begin to perceive patterns, colors, and images that are fragmented."

Depth and complexity are necessary qualities to keep this bamboo jungle fresh. Covering a building's exterior with a static image is a bold idea, as the image could soon become stale. González hopes the intricacies of CIFO's facade will provide an engaging and dynamic experience for people, with new discoveries each time they visit. ■

my city.

design
challenge.

I am
planting a
green roof
on my
apartment
building.

[illegible]

I am installing a grey
water recycling
system in our factory.

supports
sustainable
development.

I am building my
office building on a
brownfield site.

I am
starting
a blog
about
green
homes.

I am
lowering the
resource
burden of our
products.

I am
launching
a global
climate
initiative.

I am using Nature['s]
model to improve
designs.

Mein pani
garam
karne ke
liye suraj
ki garmi ko
prayog
karta hoon.

Construyo aceras
de materiales
reciclados.

I am buying green power.

I am going solar.

I am advocating
for a green school
for my kids.

I am working to
make affordable
housing green,
and green homes
affordable.

I am encouraging my
employees to become
LEED APs.

I am joining my
local chapter.

I am running
an energy
model before
I size the
HVAC system.

I am xeriscaping my front yard.

I am making the
business case for
biodiversity.

I am
replacing my
conventional
light bulbs
with compact
fluorescents.

I am installing low-flow
appliances in my house.

I am
designing
a net zero
energy
building.

I am choosing native
plants for my landsc

I am using my green school
as a teaching tool for the
next generation of leaders.

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to buy CO_2
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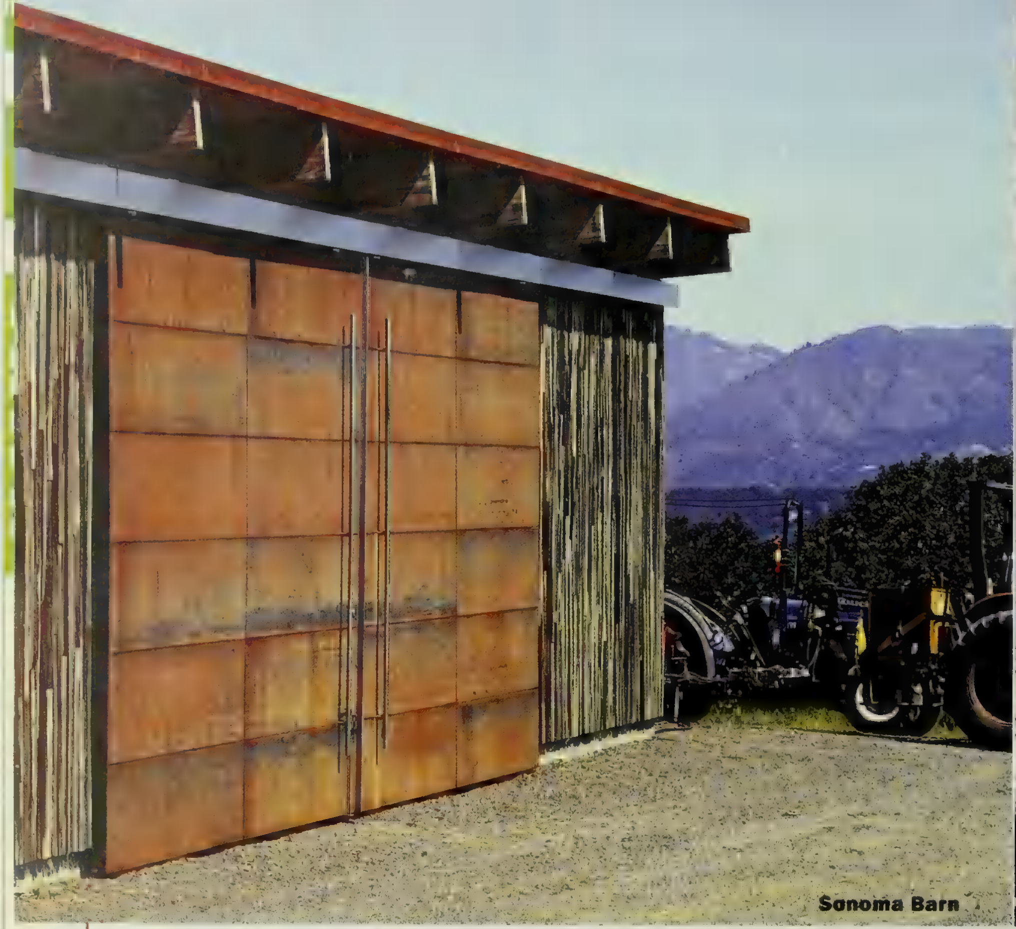
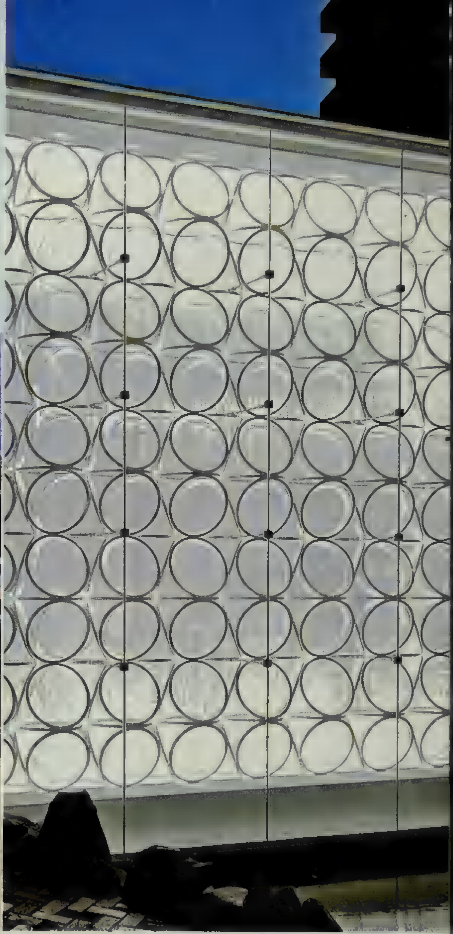


Sonoma Barn



In February, RECORD introduced a serial feature to focus on outstanding—and small—architectural projects [RECORD, February 2007, page 74]. Knowing that such noteworthy buildings may otherwise fail to attract widespread attention, we created a venue to regularly highlight just a few of these remarkable projects. With this installment, we present spaces designed for a broad diversity of users: California agricultural workers, Japanese newlyweds, and Texan architects and artists. The working barn in Sonoma County serves as a landmark for a sprawling 60-acre vineyard, and is an example of fine craftsmanship,

RECORD finds big beauty in three small projects

Made

White Chapel

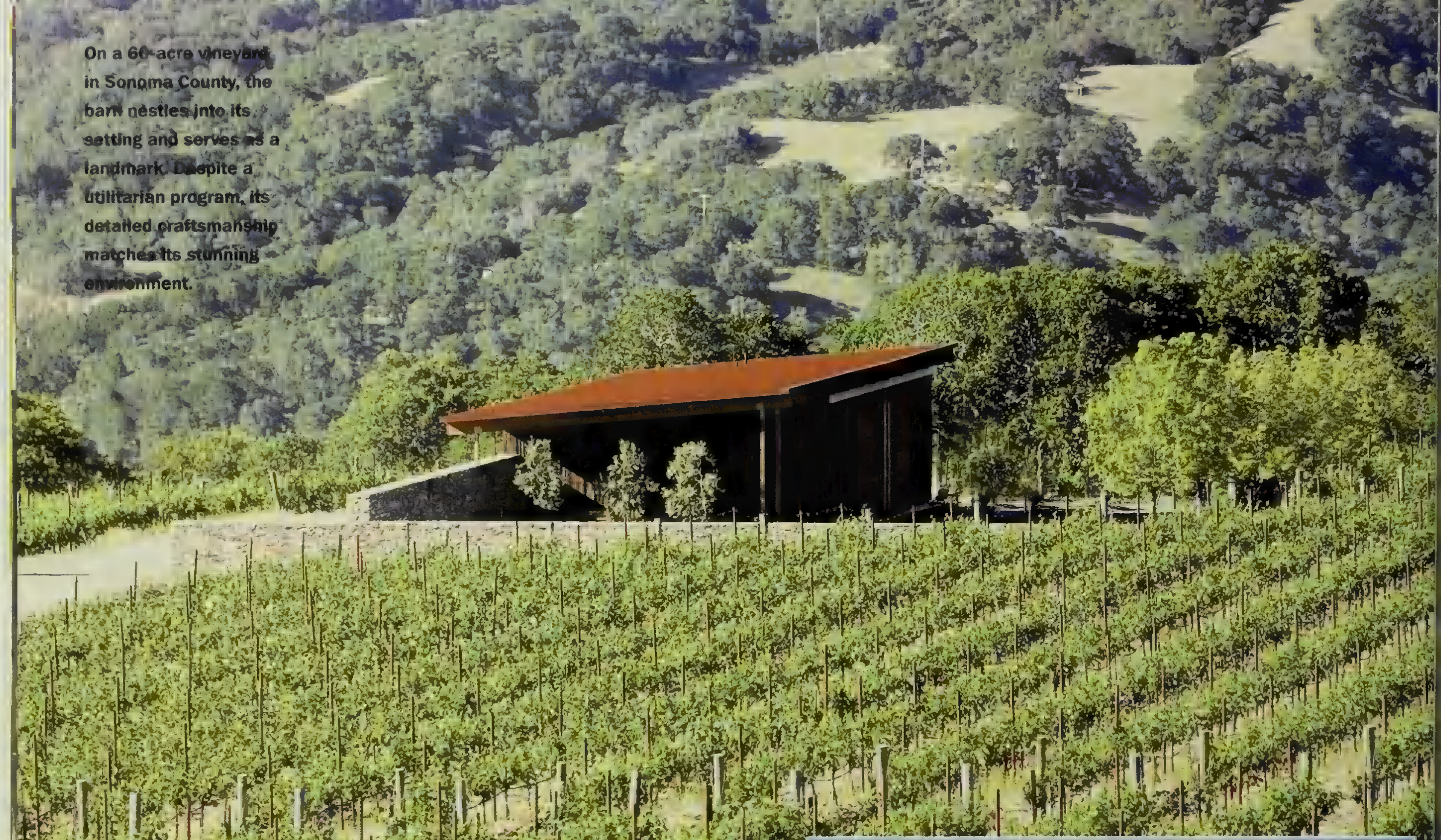
E. 12th Street Studios

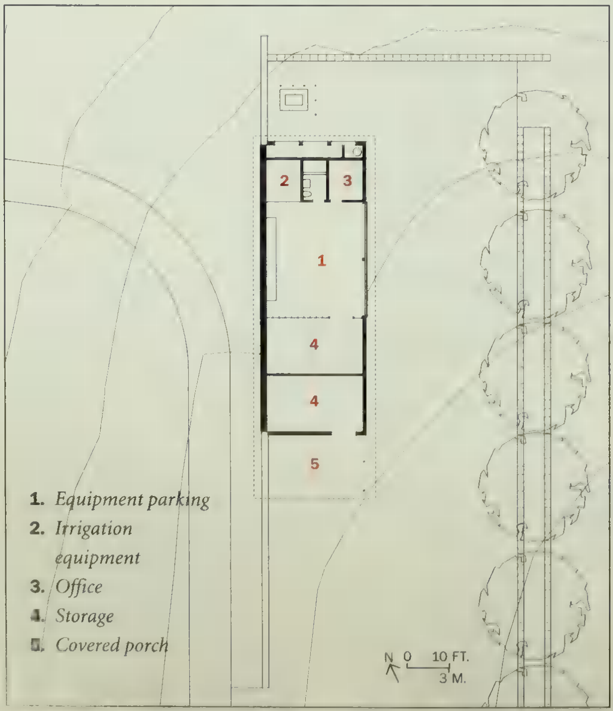
despite its utilitarian building type. The wedding chapel in Osaka elegantly marries ornament and structure with a porous wall made of rings. And in Austin, the collection of small buildings and landscapes made with inexpensive materials provides sustainable, innovative studio spaces for architects and artists.

The designs for each involve experiment and vision, but they are tempered with a careful and tasteful restraint. Trimming unnecessary excess, these buildings underscore the beauty of an architecture made to measure. *John Gendall*

o Measure

On a 60-acre vineyard in Sonoma County, the barn nestles into its setting and serves as a landmark. Despite a utilitarian program, its detailed craftsmanship matches its stunning environment.





1. *Equipment parking*
2. *Irrigation equipment*
3. *Office*
4. *Storage*
5. *Covered porch*

Sonoma Barn • Sonoma County, California • aidlin darling design

By John King

The firm of aidlin darling design created a small barn in a vineyard at the foot of Mt. Sonoma to serve workers who tend the 60 acres, which produce grapes for the cabernets of several Sonoma County wineries. The barn also functions in a quite different way—as a tough-looking but tranquil landmark for an estate where the firm also designed a residence and guesthouse for a San Francisco family (see page 192).

The real working barn, built with a poured-concrete floor and concrete-block walls, accommodates parking for two tractors. On one side, behind a partition of woven-wire mesh, lies an area to store tools, fertilizer, and pesticides; and on the other, a bathroom and foreman's office.

But if the inside is straightforwardly practical, the exterior is a finely crafted piece of architecture that combines materials in unexpected ways. A long, straight, dry-stacked fieldstone wall forms the barn's western enclosure and lends a sculptural presence to the landscape by extending 50 additional feet to the south and 25 feet to the north. In contrast to this heaviness, the barn's standing-seam Cor-Ten-steel roof hovers above it on widely spaced beams of Douglas fir.

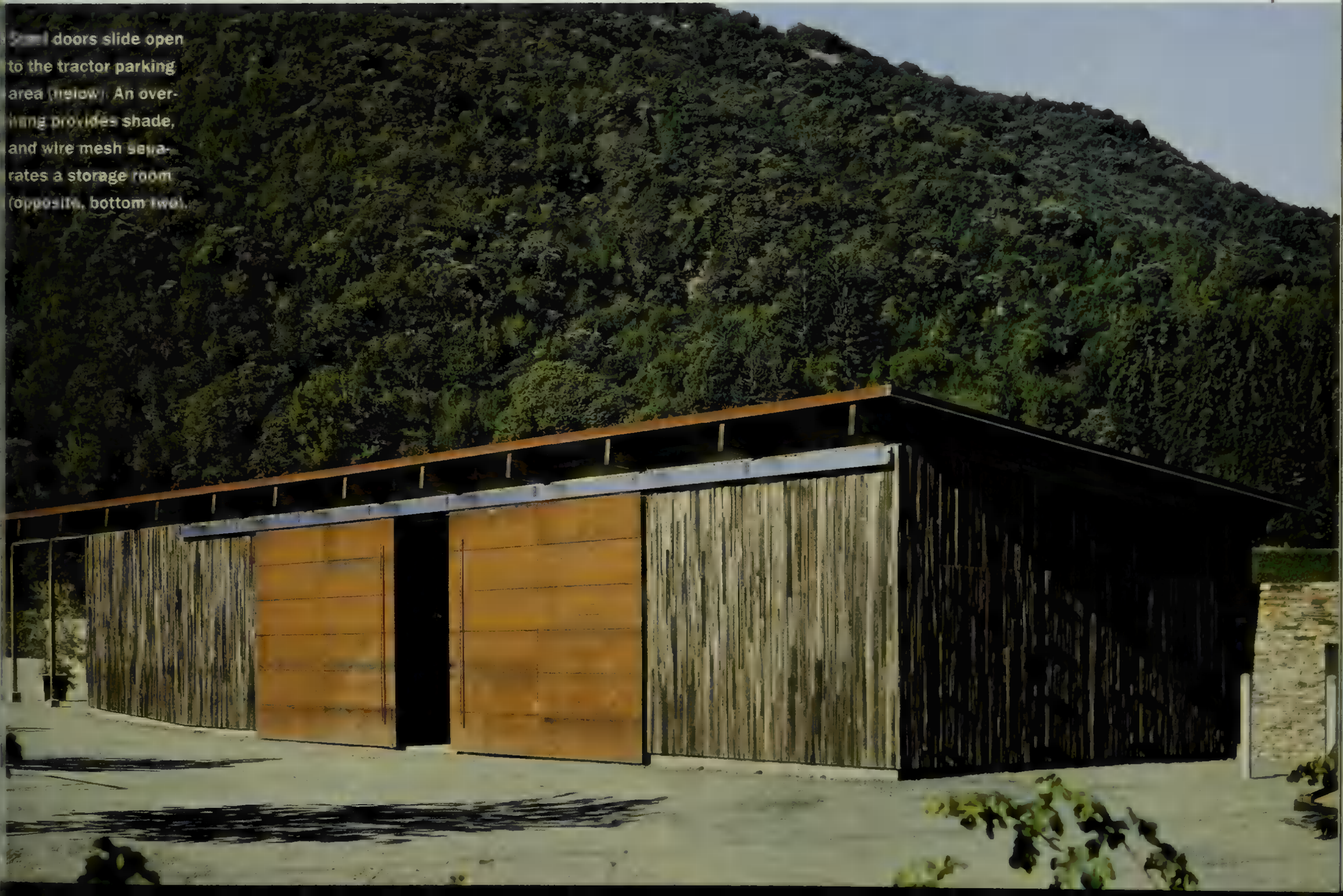
The designers chose the barn's location to best meet the needs of those working the vineyard. The wall responds to aidlin darling's intention to use the barn as an orienting landmark, and to direct the visual perception of the larger estate. Visitors enter a gate, turn to the left, and are immediately confronted by the fieldstone's straight-edged counterpoint to the terrain's slope. It also points to the south, toward the main residence in the distance, while screening off views from the guesthouse to the west of the barn's gravel parking area.

The roof and the barn's sliding-steel-plate doors give the building a contemporary character. The metal complements the rough gravel of the clearing to the east. In the afternoon sun, light ripples from the rusted roof onto the metal stakes, fanning out in rows in three directions to support the young grapevines. Extending 16 feet from the barn on the south side, the roof creates a shaded patio where the crew can rest on warm afternoons.

The carefully placed fieldstone and rusted steel contrast with other more prosaic materials. The structure's Douglas fir columns, attached to concrete footings by off-the-shelf metal ties, support the roof. To create a rain screen for the barn, the architects reused stakes from the spent vineyard that had been in place 50 years before being replanted. Culled from tight-grained, old-growth redwood, the stakes should endure for at least another half-century.

"There was a stockpile of thousands of these old weathered stakes," recalls Peter Larsen, the project designer, conveying the pragmatism embodied in the building itself. "The owner didn't want to build a vanity piece that the workers couldn't use. Before this, they had been working out of a shipping container with a portable toilet." ■

John King is the urban design writer for the San Francisco Chronicle. *He is a two-time finalist for the Pulitzer Prize in criticism.*



Steel doors slide open to the tractor parking area (below). An overhang provides shade, and wire mesh separates a storage room (opposite, bottom two).

White Chapel • Osaka • Japan • Jun Aoki & Associates

By Naomi Pollock

In Japan, tying the knot can require months of planning, millions of yen, and a lengthy search for the right venue. Though most Japanese practice a combination of Buddhism and Shintoism, many couples have their hearts set on a church ceremony. The Japanese wedding chapel, a pseudo-religious space invented purely for exchanging vows, is the answer to their prayers. Catering to this market, nearly every major hotel in Japan has one. In fact, the bridal business is so lucrative that when the 20-year-old Hyatt Regency in Osaka underwent renovation in 2006, the management decided to create a second faux sanctuary and hired Tokyo architect Jun Aoki to design it.

Impeccably dressed, Aoki's White Chapel is a faceted freestanding pavilion facing the hotel's main lobby. Enclosed in a filigree of structural steel rings, it manages to look glamorous and, at the same time, support its own roof: a cap of shimmering aluminum, visible from rooms in the 25-story hotel. Two approaches—via a path or over a pedestrian bridge spanning a carp pond—lead to Aoki's 2,831-square-foot sanctum. Between its triangular, covered terrace and a polygonal, 70-seat chapel is a wedge-shaped volume containing the entry foyer, an audiovisual room, and a waiting area for the bridal couple.

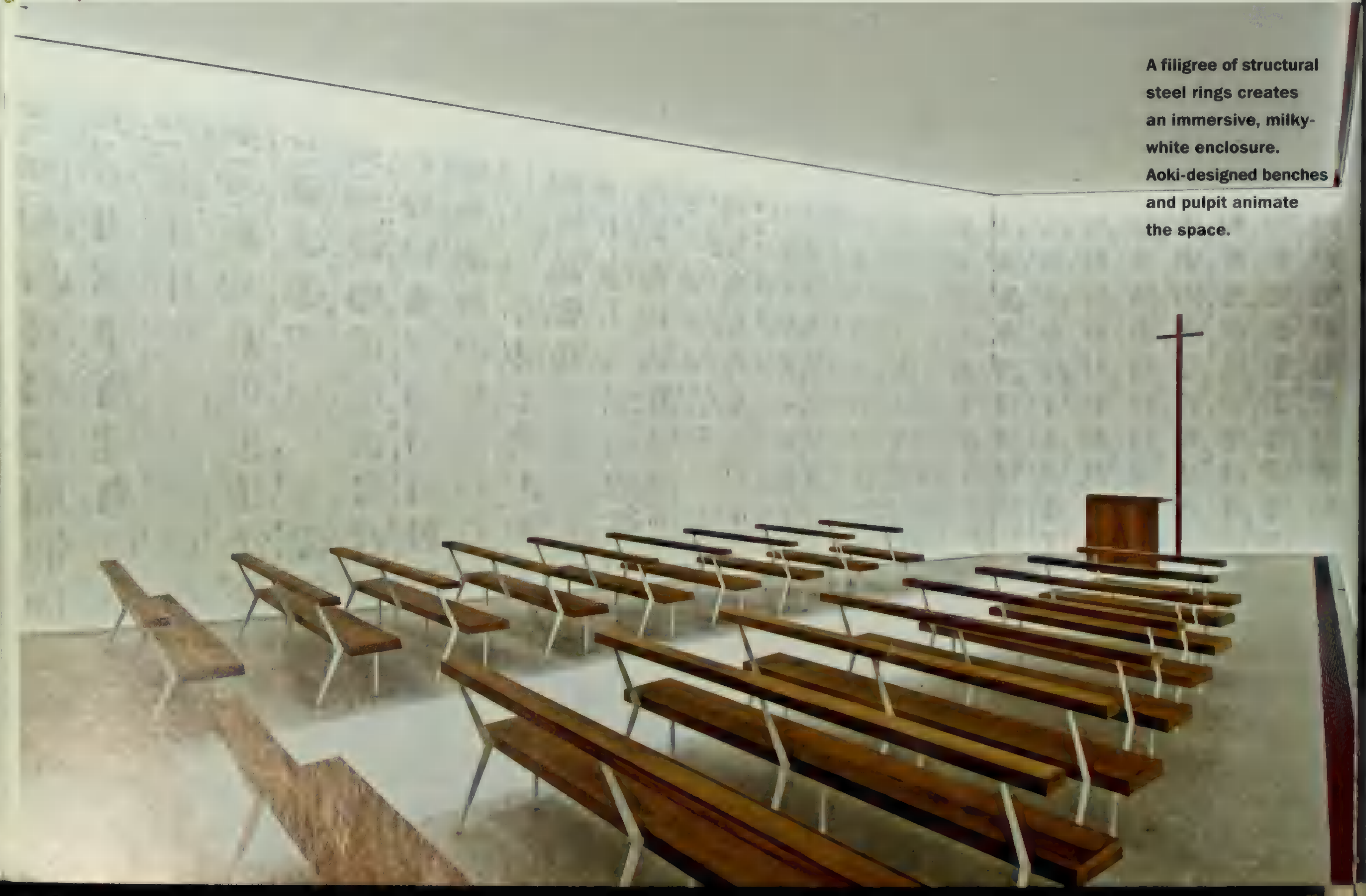
While the sanctuary is oriented toward the hotel entry, the terrace, a perfect isosceles triangle, aligns axially with the footbridge to one side and the foyer entrance to another. Within the foyer, the axis turns, heading right down the aisle to the altar, the focal point of the tapered, but irregularly shaped room.

Though the image of wedding bands seems implicit in the walls' intricate tracery, the structural concept was initially developed for another job that stalled. "I thought the structure would be suitable for this chapel since it needs little ornament," explains Aoki, who designed the system in collaboration with structural engineer Satoshi Okamura. The framework is composed of 1,517 rings, each measuring 2 feet in diameter and assembled in groups of four to form individual structural units, derived from tetrahedral geometry. The resulting 3D unit is capable of heavy lifting without compromising porosity. Even though the seemingly lacy framework eliminated the need for interior columns, slender, square pillars support the other outer walls, and a few concrete walls secure the building against seismic forces.

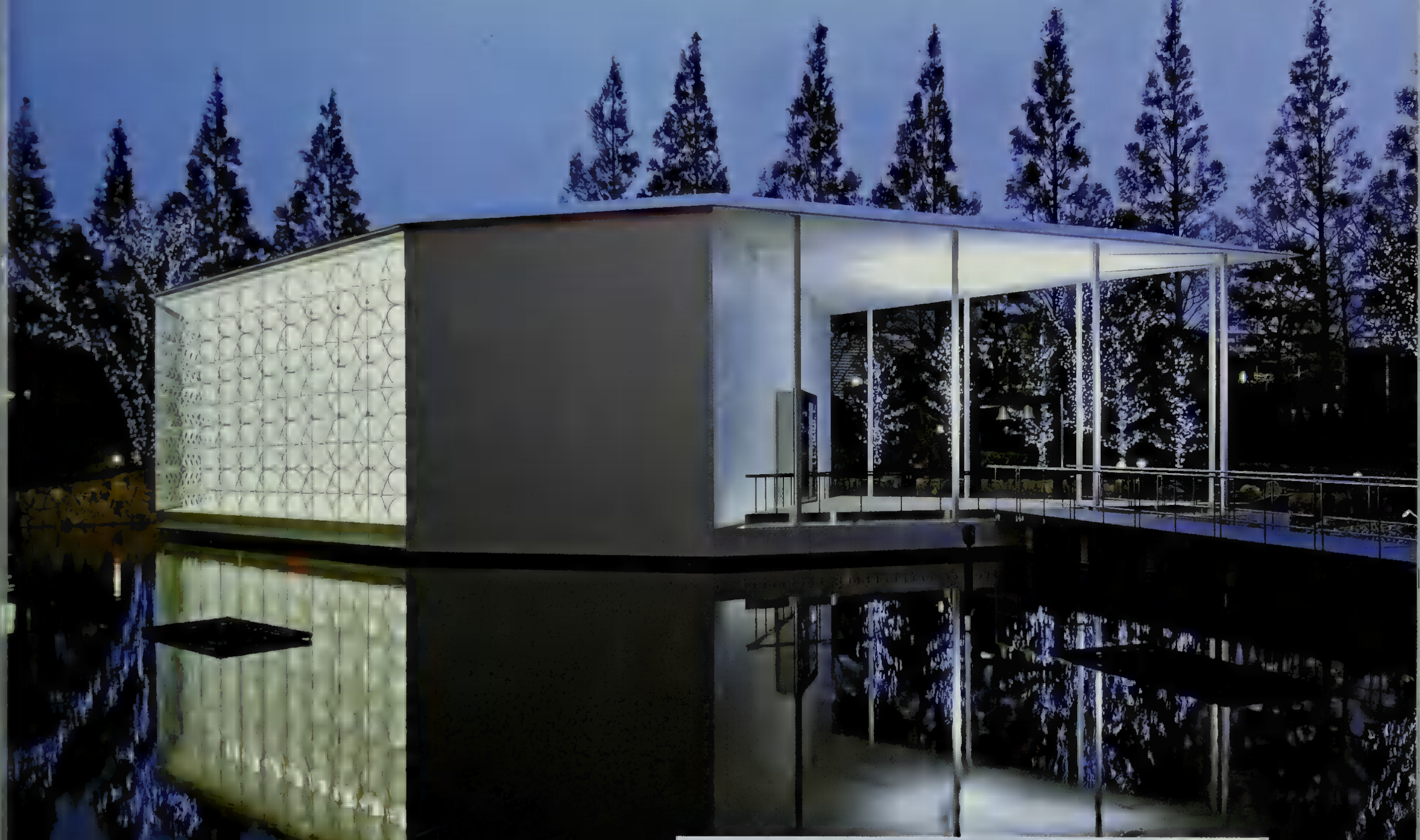
Sheets of white, diaphanous organdy fabric, custom-made by the Nuno Corporation, drape the chapel's 20-foot-high interior. Marble mosaic tiles pave the space, rough-honed in the aisle and smooth in the seating areas. And the steel-and-wood-veneered benches and pulpit, designed by Aoki, are so delicate they seem to float.

Aoki concedes, "I am not a Christian, so I have no idea how to design a church." But in Osaka, he has made a convincing facsimile. White Chapel is the perfect secular solution, allowing the bride and groom to have their wedding cake and eat it too. ■

Naomi Pollock is RECORD*'s Tokyo-based correspondent.*

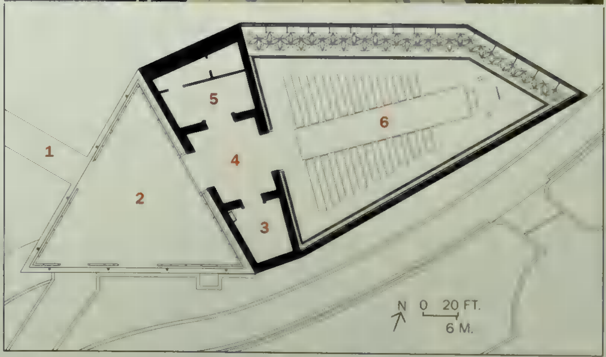


A filigree of structural steel rings creates an immersive, milky-white enclosure. Aoki-designed benches and pulpit animate the space.



The translucency of the ring filigree becomes evident at night. The wall is at once ornamental and structural. A bridge spans a carp pond to bring visitors from the hotel to the chapel (right).

1. *Bridge*
2. *Terrace*
3. *Audiovisual*
4. *Foyer*
5. *Waiting room*
6. *Chapel*



E. 12th Street Studios • Austin, Texas • Elizabeth Alford and Michael Young

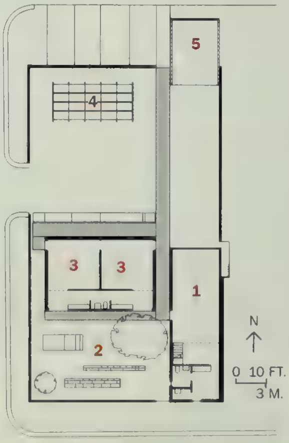
By Ingrid Spencer

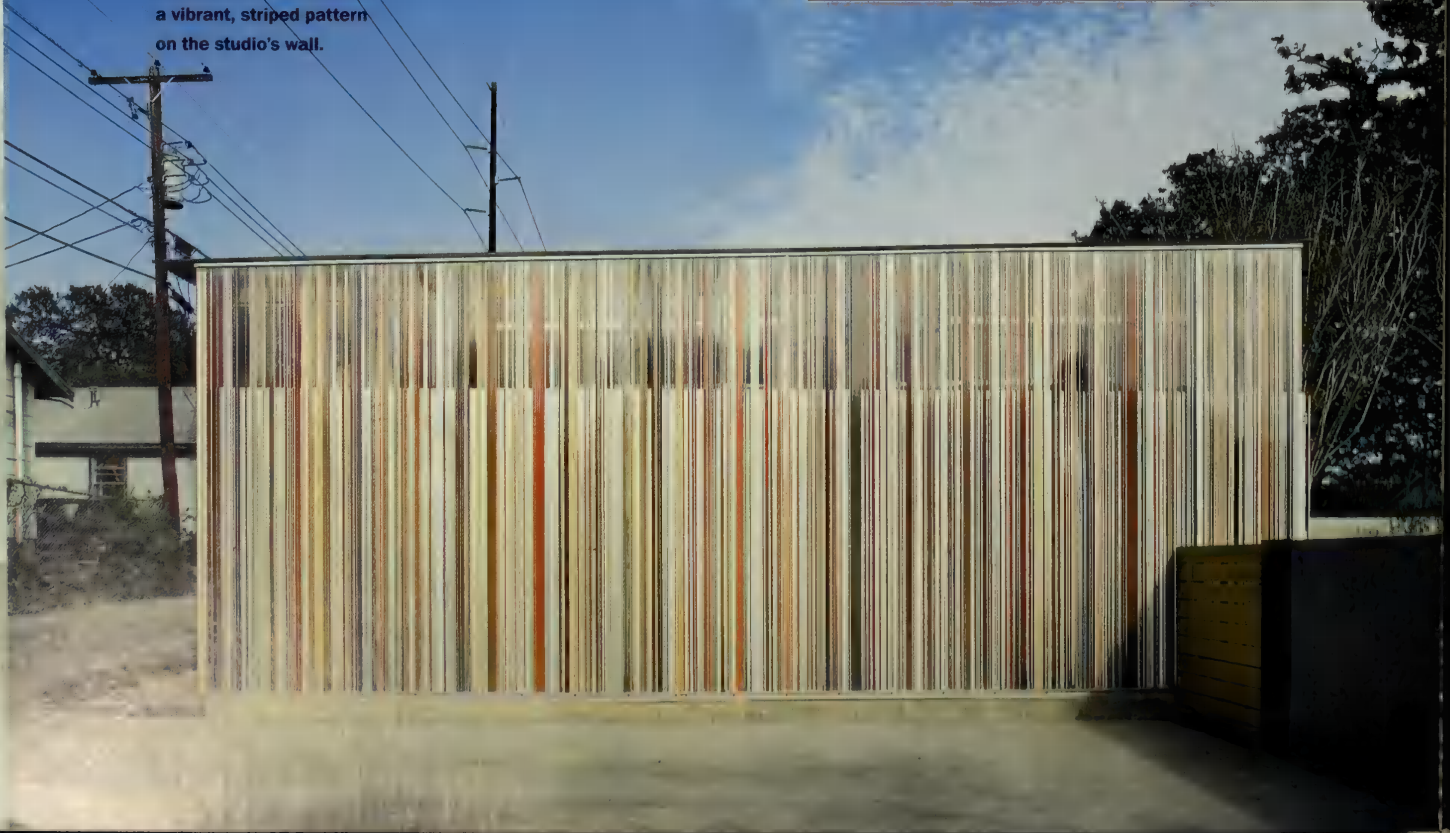
At the time they moved from New York City to Austin, Elizabeth Alford and Michael Young wanted to set up a studio for his painting and their joint architecture firm. They longed for a loft to renovate, like the space they'd left behind in Manhattan's Tribeca neighborhood. "Those buildings just don't exist in Austin," says Alford. Undeterred, they searched and found a corner lot with 8,500 square feet of dilapidated buildings on Austin's ethnically diverse east side, an area that's becoming gentrified. Excited by the opportunity to create what they couldn't in New York—structures from the ground up and landscapes integral to the indoors—they designed a cluster of small buildings and courtyards for their needs, plus additional studios to lease. "We were interested in the identity and tactility of materials," says Alford, "in testing and developing large assemblies on-site before construction."

Concrete walls 5½ feet high wrap the lot's corner, enclosing 2,600 square feet of indoor space and 5,900 square feet outdoors, and opening to the street by a rolling slatted-wood door. The buildings include a 1,400-square-foot painting studio for Young with mezzanine space for the couple's firm, two 400-square-foot artists' studios for lease, a workshop, a shade structure with photovoltaic panels, and two courtyards with sustainable landscapes—all of which became a testing ground for assembling and detailing inexpensive materials for a cost less than $200 per square foot. For Young's studio, built from

Contributing editor Ingrid Spencer is based in Austin, Texas.

1. *Architecture and painting studio*
2. *South courtyard*
3. *Studios for lease*
4. *Shade structure*
5. *Workshop*





Different colored sand poured in between polycarbonate sheets creates a vibrant, striped pattern on the studio's wall.

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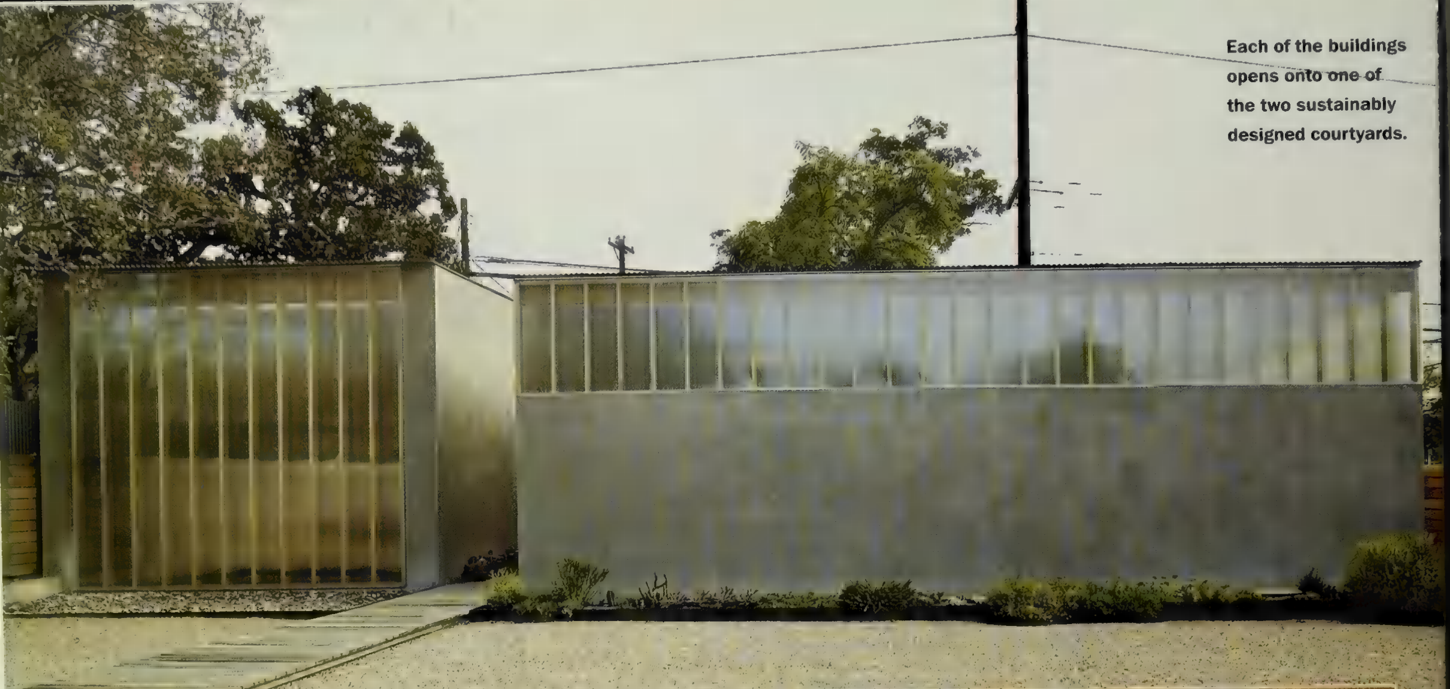
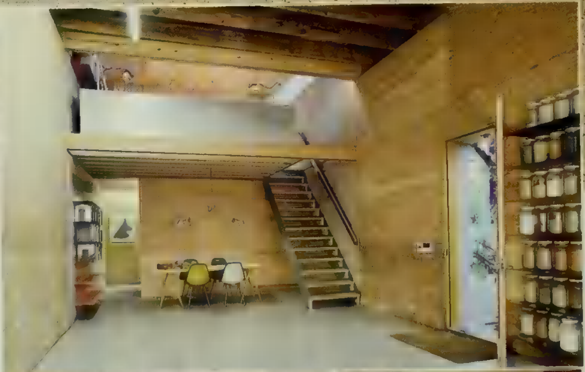


Each of the buildings opens onto one of the two sustainably designed courtyards.

The architects lifted the roof to create a large painting studio and a mezzanine office. Polycarbonate sheets bring in much light.



the remnants of a concrete-block building (previously housing a laundromat, guitar-maker's store, and contractor's shop), Alford and Young lifted and leveled the existing pitched-pine roof, creating clerestory windows and transforming a storage loft into Alford's office. The treated plywood walls have built-in, orange powder-coated steel bookshelves. For the studio's north wall, the couple sandwiched polycarbonate sheets over a structural stick frame, letting in diffuse light. Young, whose art often involves sand, created a striped pattern by filling the voids between the sheets with 1,000 pounds of colored sand. "It insulates, and we like the look," Young says, insisting that pouring the grains by hand into the narrow voids was not as time consuming as it sounds.

The two rental studios open to another sustainable courtyard on the southern side through large, rotating doors (below right). Custom steel planters with a variety of succulents, gravel, and ipé decking along the buildings' perimeter help define the landscape. The resulting effect is a peaceful desert garden—a kind of inverse oasis—in contrast to the unkempt greenery of neighboring yards. In the larger, north courtyard, the shading structure provides an outdoor workplace and a perfect party spot. "This effort has been a real building workshop for Michael and me," says Alford. "It's gratifying that the neighborhood has welcomed it." Next, the duo will develop a mixed-use live/work building on an adjacent property, allowing them to experiment further with materials, dynamic spaces, and sustainable landscapes. ■

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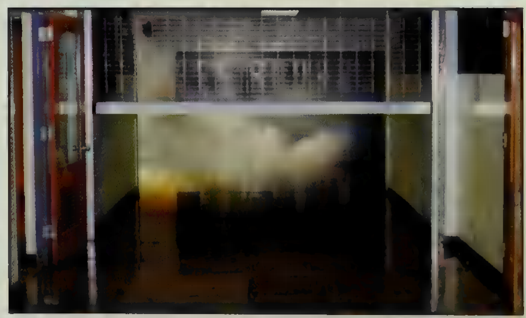

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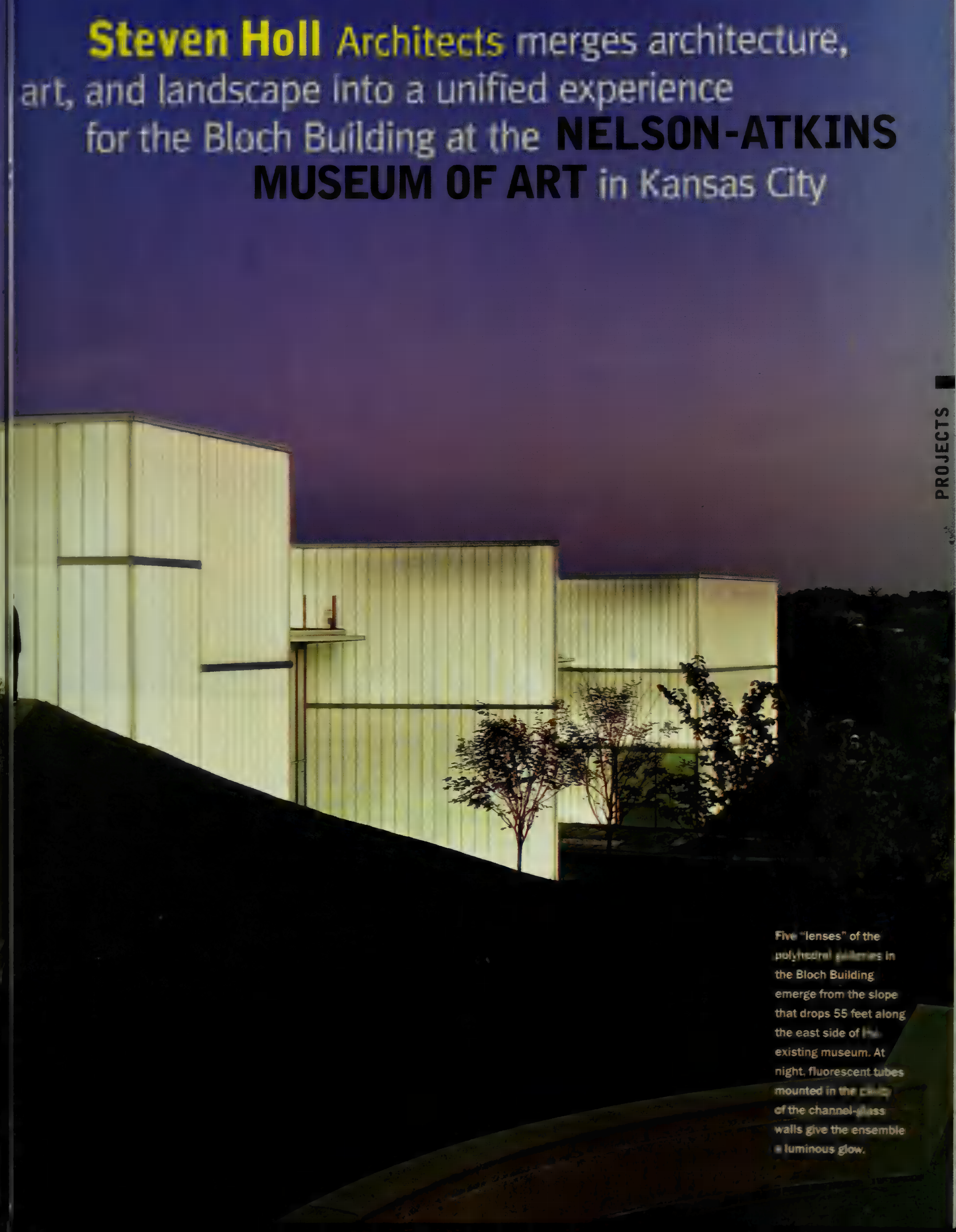
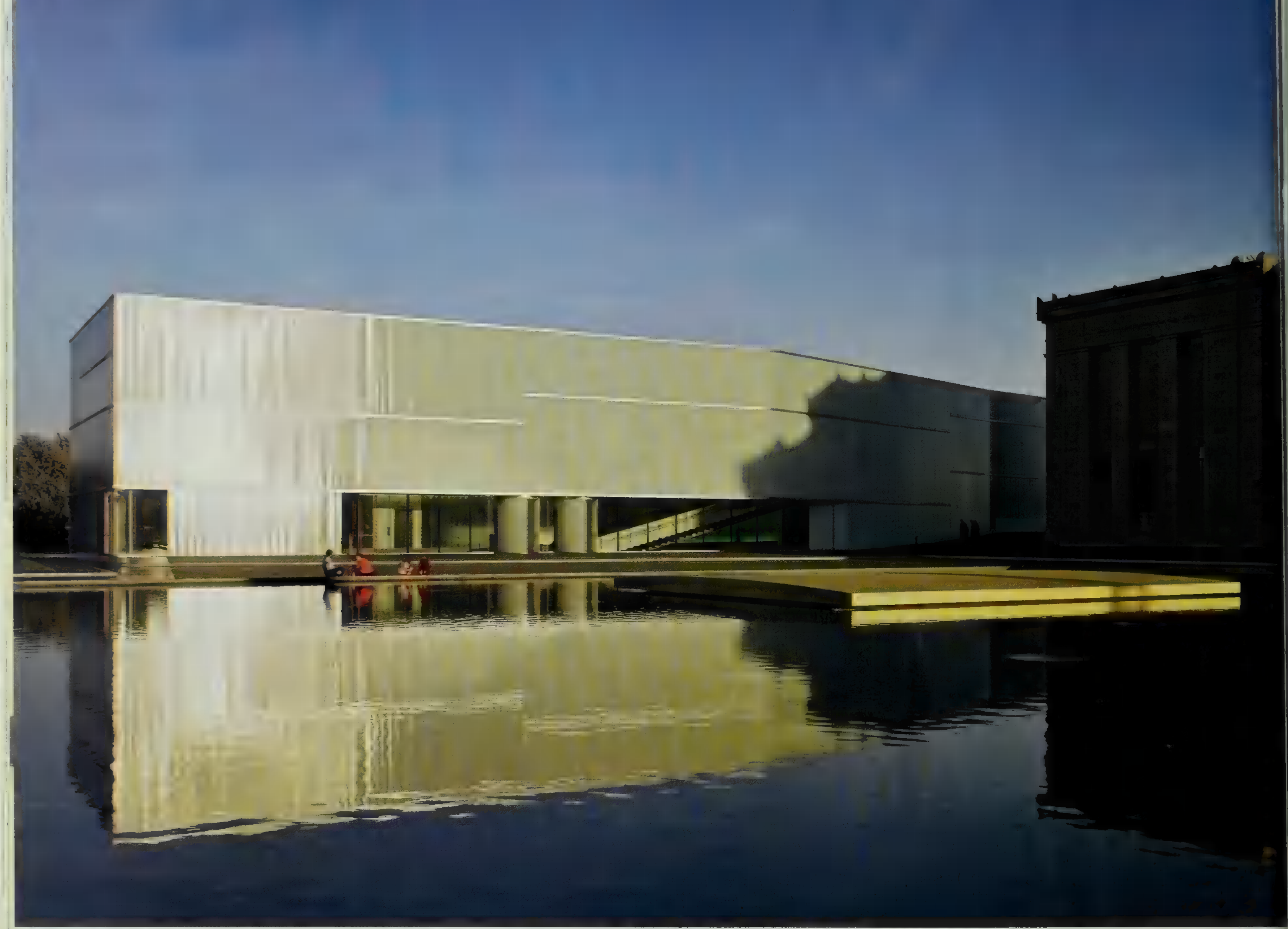
Steven Holl Architects merges architecture, art, and landscape into a unified experience for the Bloch Building at the **NELSON-ATKINS MUSEUM OF ART** in Kansas City



Five "lenses" of the polyhedral galleries in the Bloch Building emerge from the slope that drops 55 feet along the east side of the existing museum. At night, fluorescent tubes mounted in the cavity of the channel-glass walls give the ensemble a luminous glow.



Near the entrance to the Bloch Building (above), Steven Holl and artist Walter de Maria collaborated on the design of the reflecting pool in front of the existing building. From the southeast (below), the new wing can be seen alongside the 1933 building.

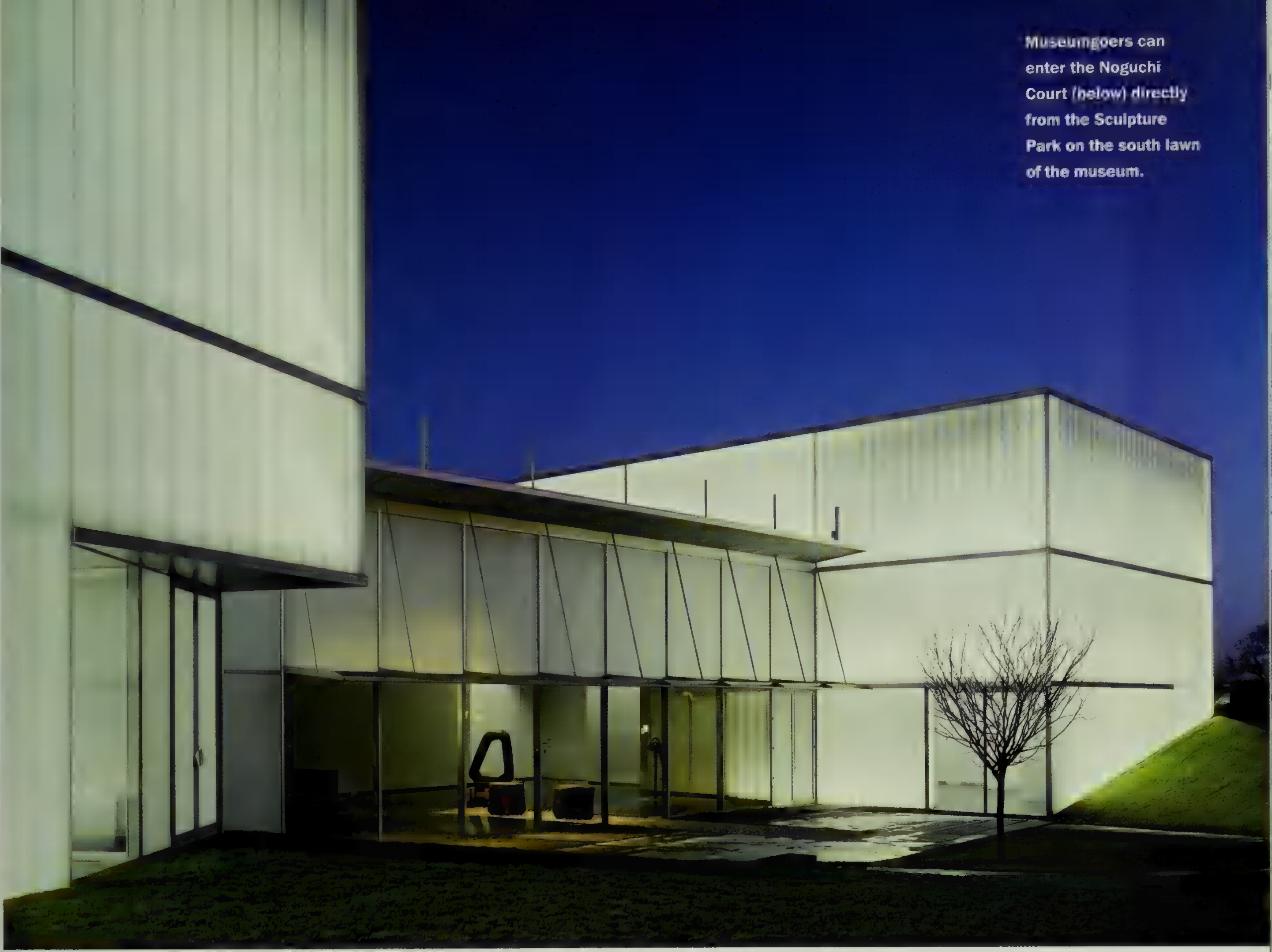
PHOTOGRAPHY: ■ ROLAND HALBE

By Suzanne Stephens

During construction, the reaction to the Nelson-Atkins Museum's Bloch Building ran the gamut from irascible to irate. According to the museum's intrepid director, Marc Wilson, the Kansas City public had liked Steven Holl Architects' design well enough when viewing it as an architectural model. "But all models are tiny," Wilson explains. It was another thing when the citizenry got a glimpse of the channel-glass-clad structures, coming out of the muddy turf atop the 840-foot-long linear underground galleries. Winding down the eastern slope, hard by the Classically styled main building, all five polyhedral forms looked like so many icebergs threatening to sink the Titanically proportioned limestone building designed in 1933 by Wight and Wight.

Observers dismissed Holl's "lenses," as he calls the irregularly shaped geometric light monitors, as shipping containers. Such ire reportedly unnerved even the new building's lead donor, Henry Bloch (founder of H&R Block), for whom the 165,599-square-foot addition is named.

Now Holl and Wilson can feel fully vindicated. The building opened in early June with great fanfare and overwhelmingly adulatory press. Steven Holl, AIA, his partner Chris McVoy, and the local architects Berkebile, Nelson, Immenschuh, McDowell (BNIM), under the leadership of Casey Cassias, AIA, can now rightfully enjoy the credit due after



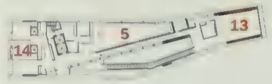
Museumgoers can enter the Noguchi Court (below) directly from the Sculpture Park on the south lawn of the museum.

eight years of grueling effort.

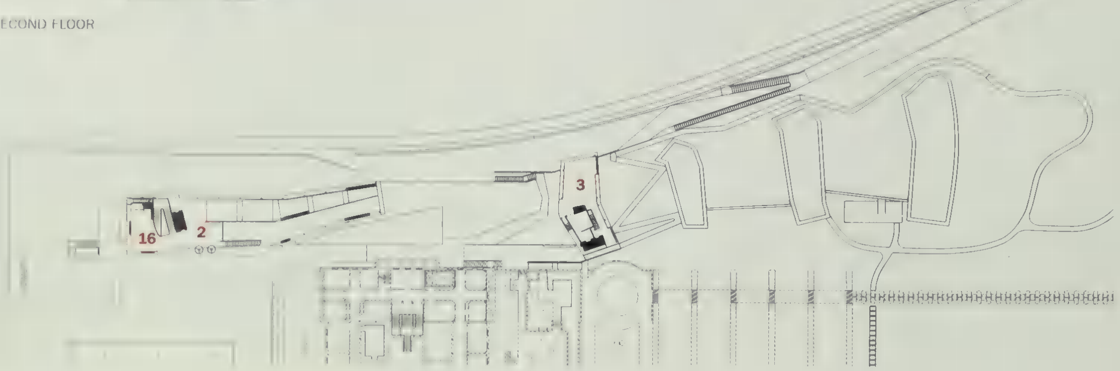
True, museums usually enjoy an intense if too brief honeymoon when they first open. This is before leaks occur, or before visitors and curators start to complain that the architectural extravaganza overwhelms the art. For now, not even a storm has blown in to test the claim that the glass can withstand winds up to 135 miles an hour. On top of that, the permanent collection of contemporary art fits into the spaces smoothly and strikingly. And while neighborhood residents thought the shipping containers didn't quite fit in with the symmetrical, Ionic-columned temple of art, the lenses, luminous with interior lighting at night, glinting in the sun by day, are looking a lot better amid the 50,000 square feet of grass-planted

Project: *Bloch Building, Nelson-Atkins Museum of Art, Kansas City, Mo.*
Architect: *Steven Holl Architects—Steven Holl, AIA, principal; Chris McVoy, partner in charge; Martin Cox, Richard Tobias, project architects*
Architect of record: *Berkebile, Nelson, Immenschuh, McDowell (BNIM)—Casey Cassias, AIA, principal; Greg Sheldon, AIA, senior project architect; Matthew Porreca, AIA, Rick Schladweiler, AIA, project architects*
Structural engineer: *Guy Nordenson and Associates*

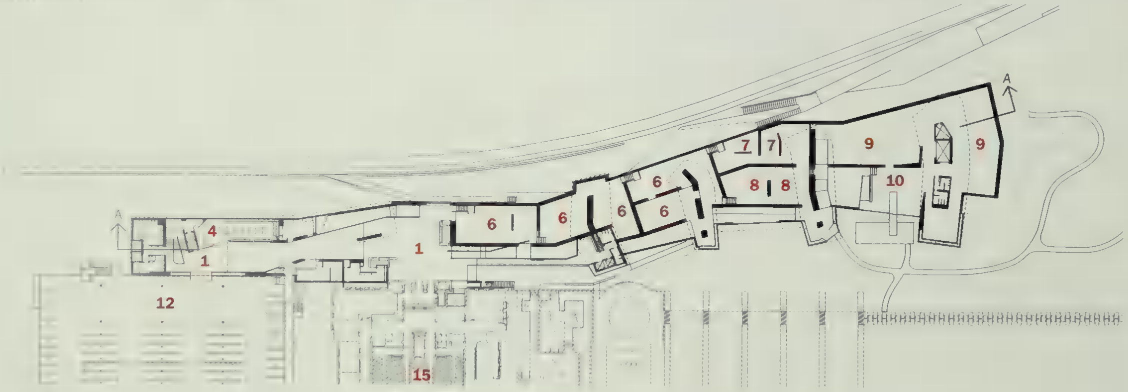
The 22-acre Kansas City Sculpture Park, designed in 1989 by landscape architect Dan Kiley and Jaquelin Robertson of Cooper Robertson, lies to the south of the old museum (right). Part of a public/private enterprise between the museum, the city, and the Hall Family Foundation, the park merges with the grassy lawn and roofs of the new wing.



SECOND FLOOR

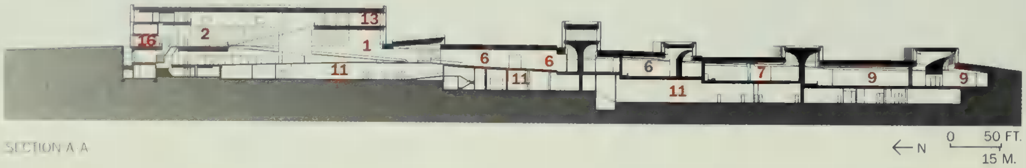


FIRST FLOOR

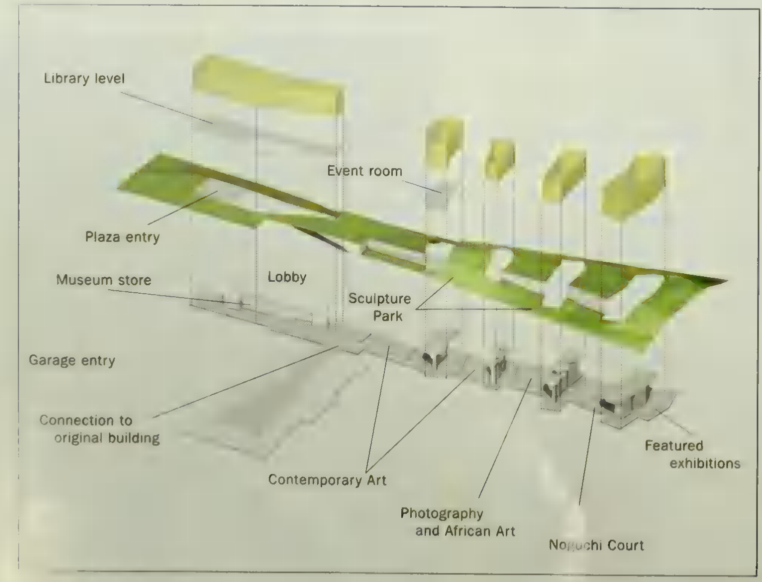


LOWER FLOOR

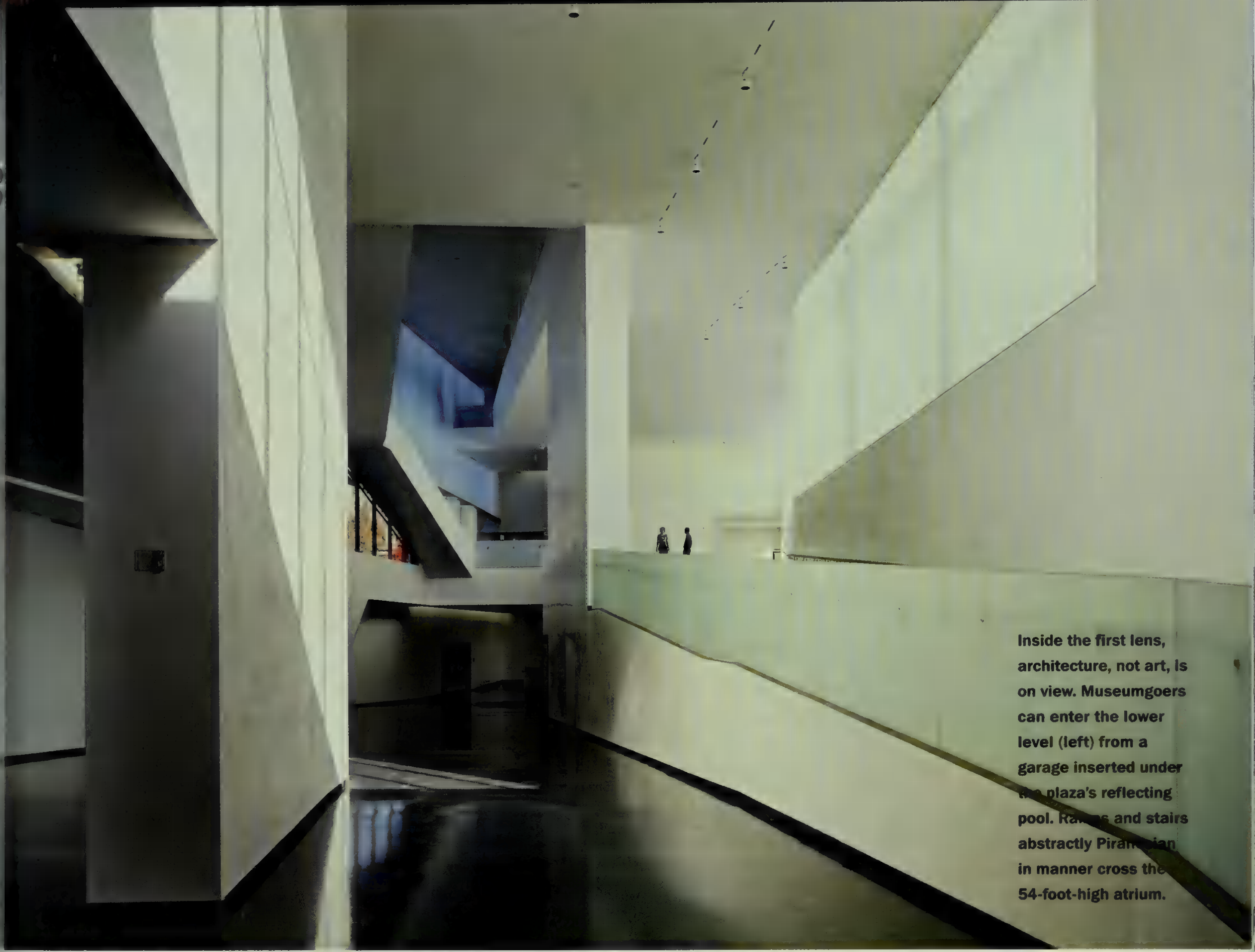
1. *Lobby*
2. *Upper lobby*
3. *Event room*
4. *Museum store*
5. *Library*
6. *Contemporary Art*
7. *Photography*
8. *African Art*
9. *Special exhibitions*
10. *Noguchi Court*
11. *Art service*
12. *Parking*
13. *Multipurpose room*
14. *Executive offices*
15. *Auditorium*
16. *Café*



SECTION A A



Light suffuses the subterranean levels of the galleries, including the first lens (right), where recycled-glass aggregate gives a sheen to the floors. Visitors can check coats and go into the museum store before going upstairs. An exploded axonometric (left) shows the relationship of the various elements in the new wing, from the first lens at the far left to the last one, at far right.



Inside the first lens, architecture, not art, is on view. Museumgoers can enter the lower level (left) from a garage inserted under the plaza's reflecting pool. Ramps and stairs abstractly Piranesian in manner cross the 54-foot-high atrium.

roofs connecting them. Indeed, the integration of art, landscape, and architecture creates a dynamic whole where visitors—including this observer—are bowled over by the experience of meandering through and around the exterior and interior spaces.

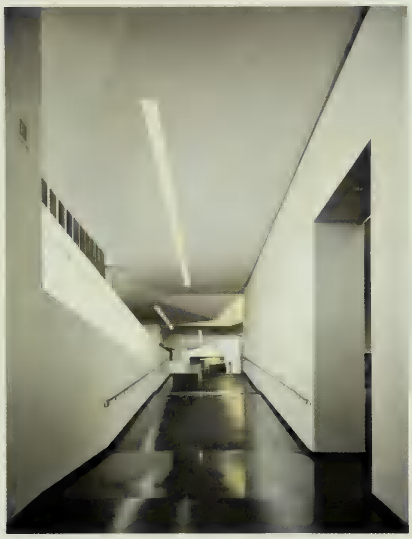
Experience is the key word, for Holl has often maintained that the experiential quality of architecture is its most significant aspect. He refers to the perceptual unity where the optical sense combines with the haptic, or sense of touch (which enables you to "feel" in your mind's eye the shape of an object by simply looking at it), which in turn is enriched by the kinesthetic sense conveyed by your limbs—muscles, tendons, and joints—in movement. You need space, time, and architecture to bring all this into play: As the museumgoer walks through the Bloch Building, he or she is aware of the changing spaces, elongated and flowing into one another at one moment or more enclosed and intimate in another; of the surface modulation of planes that form the walls, ceilings, and floors; of daylight admitted through clear and translucent glass and bounced off of smoothly polished surfaces, such as the hand-troweled plaster walls. The combined sources of natural and electrical light also endow the recycled-glass-aggregate floors in the public areas with a soft sheen, and pick up the dark luster of the stained end-grain oak blocks in the galleries.

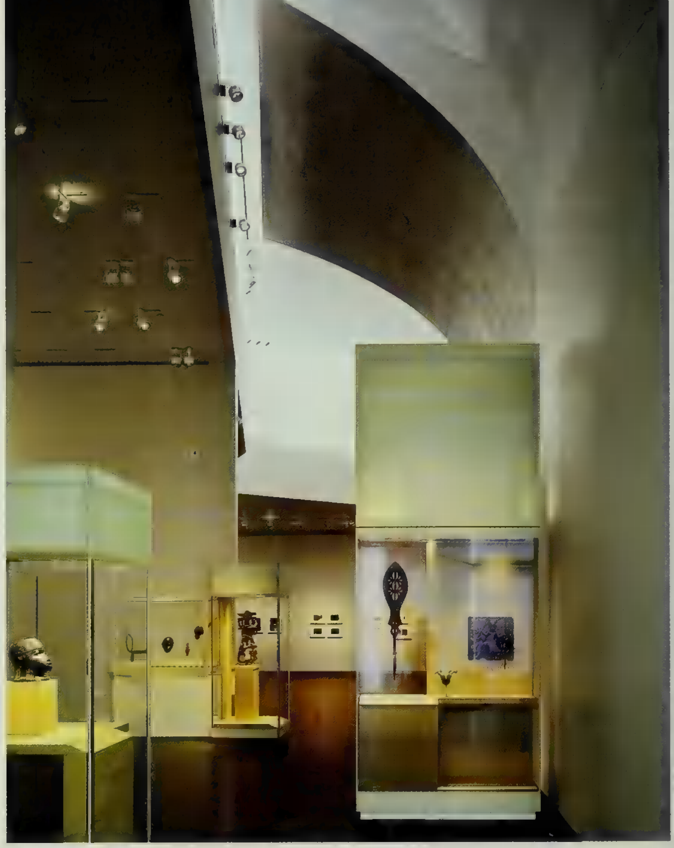
The most visible "lens" above ground is the first one, which does not contain any art galleries—or even art: Architecture takes over in the new wing's main lobby, 54 feet high, which is accessible from both the plaza on the north side of the building as well the parking garage on the level beneath it. An Aaltoesque ramp and a knife-edge stair dominate the space—the ramp leading to the lower level, and the stair seeming to float up to the conference room, walnut-paneled library, and director's office above.

Within the entire addition, Holl devised a *promenade architecturale* in the Corbusian sense, that is, a processional path that begins in the first lens as you are drawn by the downward tilt of the ramp through the museum's atrium. As you descend into the galleries in an angular sequence, you come to levels where you can pause and leave the trajectory. One such level is a lobby where the below-ground entrance to the 1933 building takes you to a new stair leading to the existing museum.

If you proceed on through the new wing, you are pulled into the contemporary art, photography, and African art galleries, where your eye is continually directed on diagonals and across perspectives to artworks of varying sizes. Here you find that the galleries, bathed in a soft light, do much to counter the feeling of being embalmed in a subterranean netherworld. Tall, concave vaults, 27 to 34 feet high, created by the T-shaped structural

The gallery walk between connecting lenses receives light from the west (left). The balustrade of partially acid-etched glass helps refract light, as do the hand-troweled plaster surfaces of the interior walls. Light is deflected around coved fins of the T-shaped, thick walls (which contain mechanical, electrical, and structural elements) in the galleries, such as the one devoted to African art (right).





walls with curved tops, bounce light softly down from clerestories, an effect that seems to owe much to the scupperlike light monitors of Josep Lluis Sert's Fondation Maeght in Saint-Paul de Vence, France (1964), as well as the slotted barrel vaults of Louis Kahn's Kimbell Art Museum, in Fort Worth (1972). Secondary concave projections (called "flutters"), which resemble giant abstractly rendered acanthus leaves, refract light as well.

Farther along the gallery walk, you come to the Noguchi Court, where an expansive window wall looks out on the lushly terraced 22-acre Kansas City Sculpture Park, occupying the south lawn of the museum. Here Holl generated a strong visual connection to the outside through a swath of rocks that extends from the Noguchi Court's interior straight through the window wall to an outside court. (Doors also offer access outside as well as in—as they do in many places in this admission-free museum).

The Noguchi Court forms something of a terminus for the processional, although galleries for changing exhibitions lie beyond in lens five. Leaving the building to walk around the exterior of the lenses, you notice the sometimes low-key, sometimes dramatic interplay of light on channel-glass walls at various perspectives and during various times of the day. The cladding, composed of 6,000 double-interlocked U-profile planks of tempered low-iron glass, 16 inches wide, contains translucent capillary insulation between its inner and outer surfaces. This wall is separated from a single layer of acid-etched, low-iron, high-UV laminated glass by a 3-foot-wide catwalk accessible to service personnel. Fluorescent tubes placed within the pressurized air cavity illuminate the structures at night.

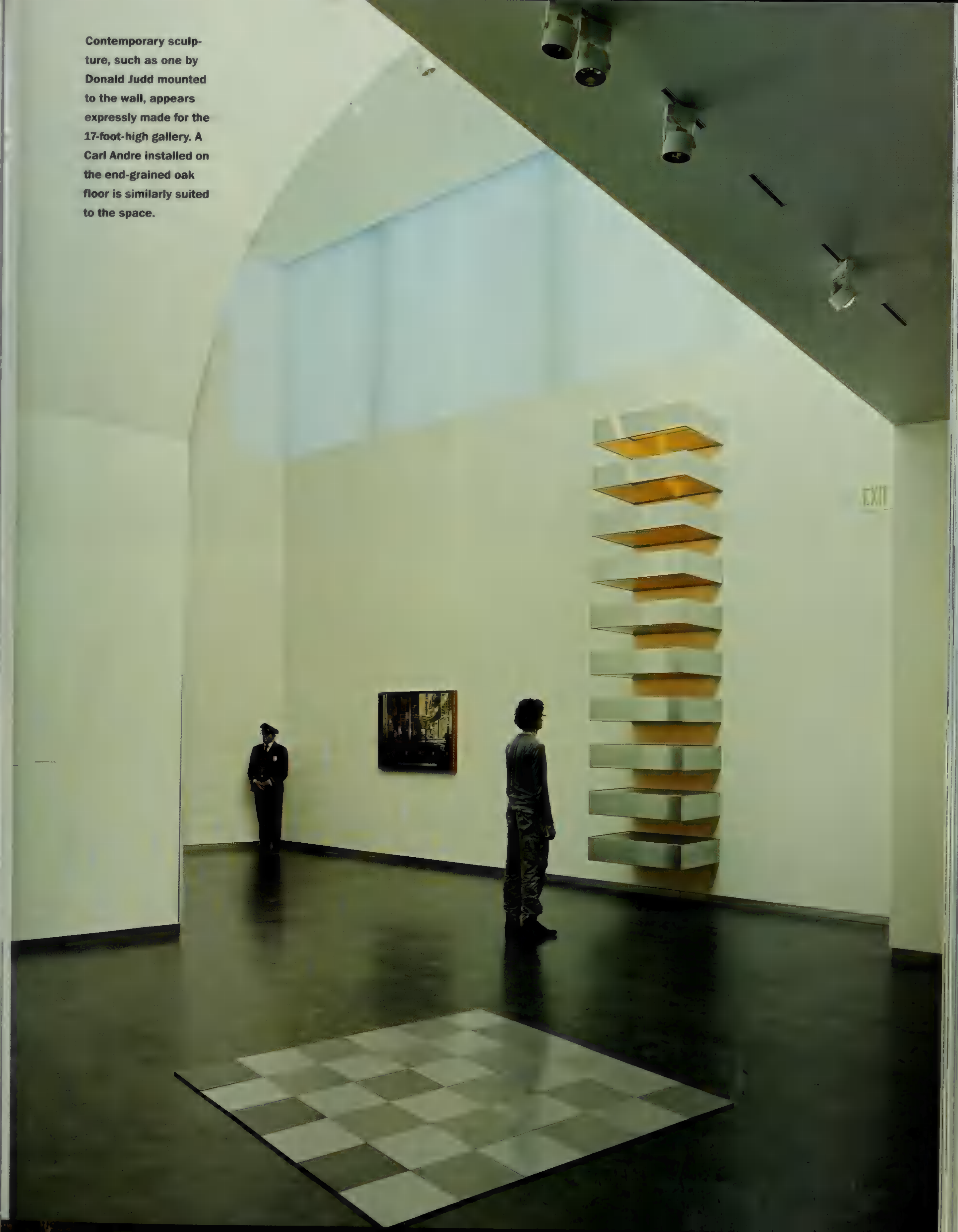
Owing to a solar texture on the outer surface of the channel glass and the sandblasted inner face of this outer wall, the exterior takes on an opalescent sheen in sunlight, rather like chantung silk. Although [illegible] appears flat in even light, as exterior conditions change, [illegible] pattern emerges. While vertical joints composed of silicone tubes and sealants disappear from view, Holl designed the aluminum sills and headers for the planks as staggered horizontal lines: He didn't want them to read as edges of the floor plates, but to reaffirm the overall asymmetrical theme.

The asymmetrical addition doesn't look as if it was simple to build. And it wasn't. Some 650 drawings were needed, not including 300 perspectives to predict vantage points of museumgoers. Although the construction figure is given as $94 million, the overall budget, which includes a comprehensive restoration of the existing Nelson-Atkins by BNIM, plus a parking garage, came to $200 million.

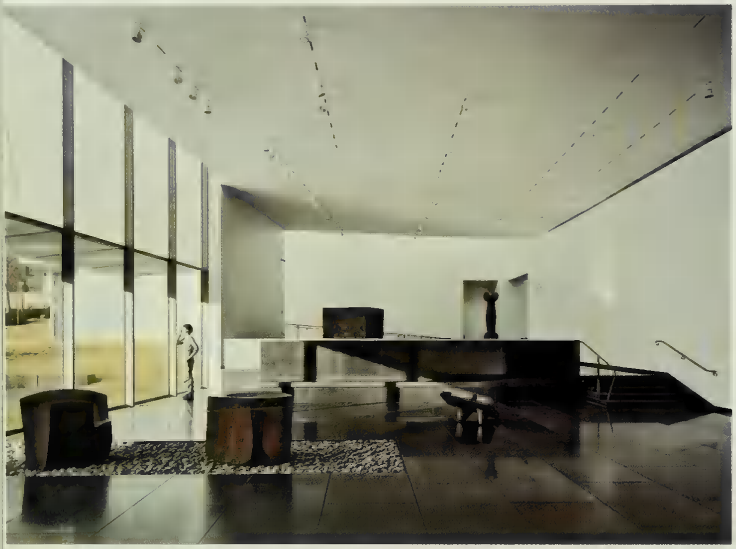
The addition sits on poured-in-place concrete foundations. The level under the galleries is devoted to storage and loading docks. To keep the glass walls free of columns, Holl, in consultation with structural engineer Guy Nordenson, worked out a steel framing system that pushes the structure to the center. In the first lens, a large truss snakes across the length of the space, like an asymmetrical spine. Holl, McVoy, and the team have exposed the truss elements at the top so that part of the structure could be legible. From the truss, part of the roof cantilevers west over the glass window wall, which is suspended from it. The basic structure of the lenses for galleries is contained within T-wall units, which are thick enough to carry mechanical and electrical services. In these T-walls, a series of vertical trusses branch out as horizontal girders supporting the roof or an upper floor. The team stabilized this cantilevered structure by embedding rods in the channel glass's cavity walls, like cables and ropes on a boat.

Clearly, the museum's trustees and selection committee took a risk with Holl's innovative and structurally ambitious scheme. That the Nelson-Atkins was already famous for its collection of Chinese art gave them confidence—the museum didn't depend on architecture as the only draw. At the same time, Marc Wilson had been at the museum long enough—34 years, including 25 as the director—to know the city, the

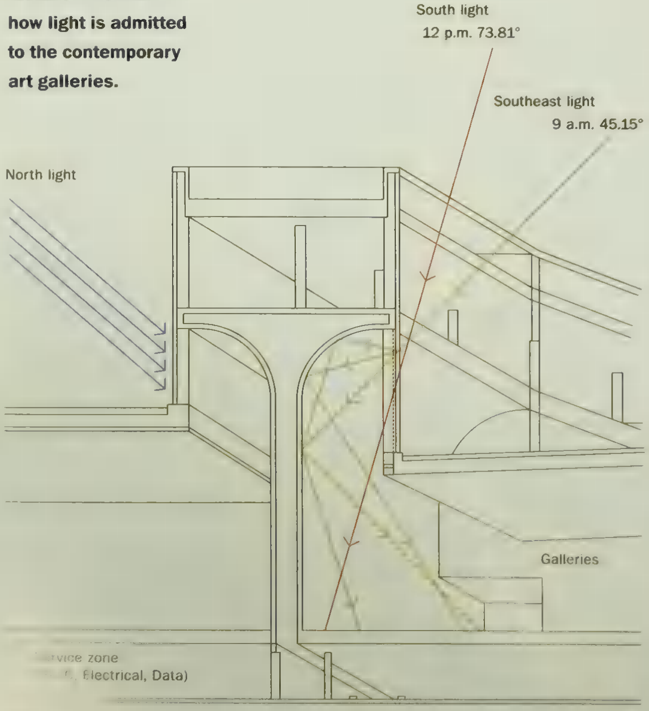
Contemporary sculpture, such as one by Donald Judd mounted to the wall, appears expressly made for the 17-foot-high gallery. A Carl Andre installed on the end-grained oak floor is similarly suited to the space.



The Noguchi Court (below), devoted to the sculpture of Isamu Noguchi, is located between the fourth and fifth lens structures. Black polished granite is used for the floor and bench. In the fifth lens, a sculpture by Sol Lewitt is appropriately positioned below the coved fins of the skylight (right).



In the second lens building, an event space sits atop the T-wall. The diagram below illustrates how light is admitted to the contemporary art galleries.



DIAGRAM

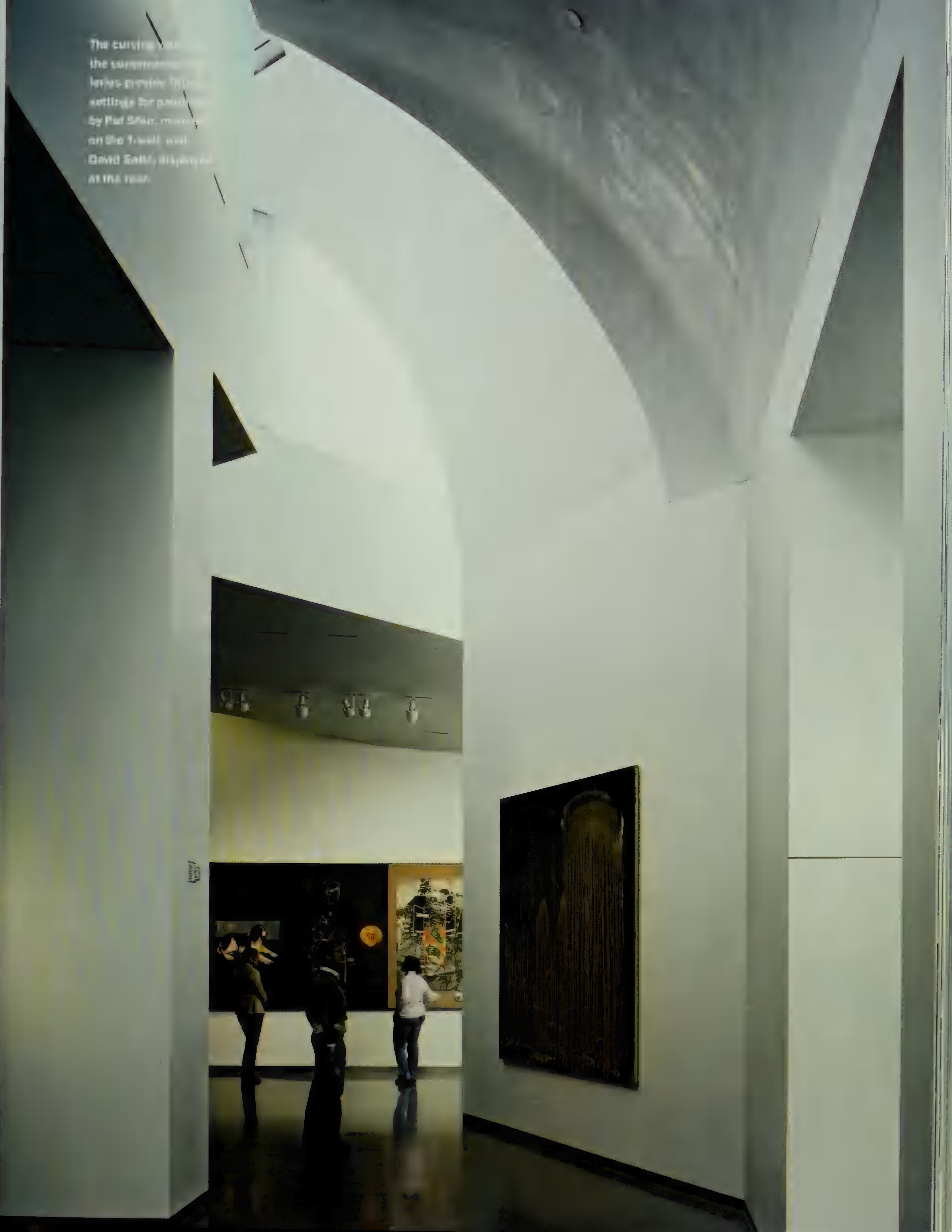
public, and the donors all extremely well and to be able to handle controversy. Holl, who had daringly gone against the grain to place the addition to the east of the museum, when his competitors generally put their schemes in front of the north facade, won the backing of a sophisticated selection committee in 1999, which included the late J. Carter Brown, William Lacy, and Ada Louise Huxtable.

Nevertheless, a laundry list of complaints could crop up: Illuminating five buildings at night is not very "green"; the silicone joints may fail long before the glass; and the rest of the Bloch Building needs a lot of glass cleaner and floor polish. Clearly, the old building and the new have little contextual relation—Holl's inspiration comes from the landforms and sculpture of the south lawn. In this case, the contradiction between the 1933 and the 2007 architecture works, but only through embracing antinomy: light to solid masses; asymmetrical to symmetrical plans; fragmented, nonhierarchical to centralized and hierarchical spaces.

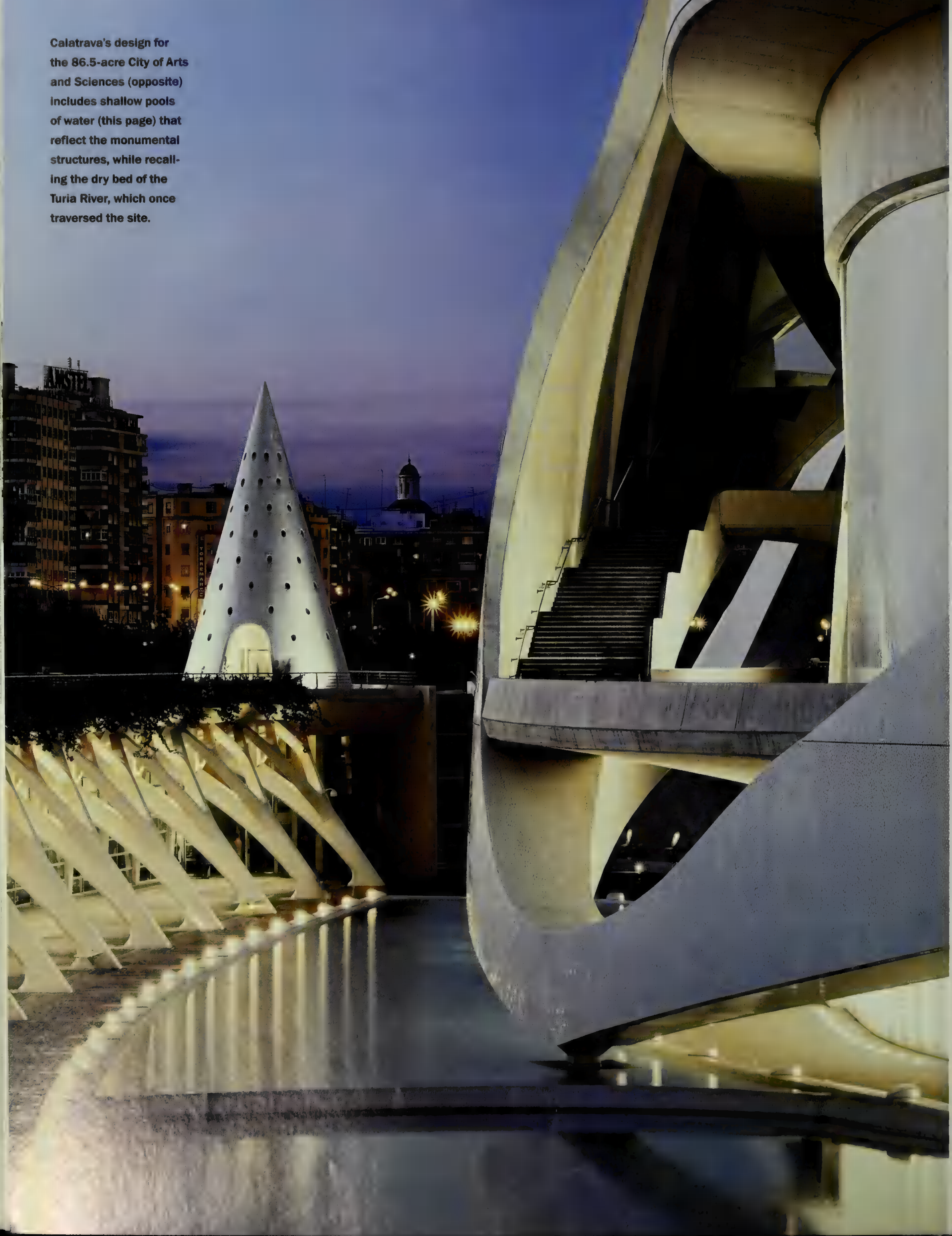
Furthermore, there are no places for an indoor Richard Serra (this era's measuring stick for gallery sizes). Indeed, the ratio of new circulation space to new gallery space seems about 50:50, so that the museum could run out of places to install art. While the art-free first lens offers a "party hall," so necessary when staging exhibition openings, one could argue that the central Kirkwood Hall of the 1933 building provides a very elegant space for just this sort of thing. All of which is to say that, while this addition is brilliant—succeeding provocatively and magnificently in the integration of art, landscape, and architecture; of contrast, contradiction, and dissonance; of architecture raised to an artistic level—it is not a solution for every museum. It is unique in the true sense of the term. ■

For sources, see page 124.

ONLINE: To rate this project, go to ***architecturalrecord.com/projects/***.
Submit your project to ***construction.com/community/gallerylist.aspx***.



The curving [illegible]
the surrounding [illegible]
leries provide fitting
settings for paintings
by Pat Steir, mounted
on the T-wall, and
David Salle, displayed
at the rear.



Calatrava's design for the 86.5-acre City of Arts and Sciences (opposite) includes shallow pools of water (this page) that reflect the monumental structures, while recalling the dry bed of the Turia River, which once traversed the site.

In Santiago **Calatrava's** City of Arts and Sciences, in Valencia, the **REINA SOFÍA PALACE OF THE ARTS**, an opera house, finally touches down

Aspiring to give Valencia, Spain's third-largest city, cultural clout and a tourist magnet rivaling Frank Gehry's museum in Bilbao, the regional government set out to develop an 86.5-acre site on a dry riverbed, midway between Valencia's old section and its coastal district. In 1991, architect and engineer Santiago Calatrava, a native son of the city, won the competition for a telecommunications tower on that land and soon after gained the commission to develop the entire City of Arts and Sciences there. Governmental changes in 1996 prompted the decision to create the Reina Sofía Palace of the Arts (Palau de les Arts), to include an opera house, at the site's western end, in place of the planned telecommunications tower.

Ten years later, the $454 million, 475,000-square-foot palace, one of the last pieces in the grand scheme, finally reached completion. In Calatrava's surreal "city" of gardens, reflecting pools, and all-white, structurally exuberant buildings of steel, glass, and concrete, the monumental opera house stands along the main axis, linking it across the vast site to the Hemispheric Planetarium/IMAX theater of 1998 (an iconic structure evoking a human eyeball, socket, and lid, all set over a 260,000-square-foot "mirror" of water) and longitudinal Prince Felipe Science Museum of 2000.

*Rising to a 760-foot-long, purely gestural crest of cantilevered steel, the sculptural Palace of the Arts bears an unmistakable resemblance to Calatrava's opera house in Tenerife [*RECORD*, February 2004, page 78]. For the Valencia version, a pair of steel shells, covered in white* trencadís *(the traditional ceramic-shard mosaic famously adopted by Antonio Gaudí), embraces a mostly concrete structure. With a total audience capacity of 4,000 indoors, the building includes four performance spaces—most prominently, a 1,390-seat opera theater, 1,585-seat upper auditorium, and 380-seat Magistral Hall—a cafeteria, café, and restaurant, plus an open-air, 2,000-seat performance venue, sheltered only by the roof overhead.*

With the realization of this major project, the editors of ARCHITECTURAL RECORD *have invited Luis Fernández-Galiano, editor in chief of* Arquitectura Viva *magazine in Madrid, to provide a critical assessment of the Reina Sofía Palace of the Arts. Inspired by* The Dialogue of the Dogs, *a satiric 17th-century text by Miguel de Cervantes Saavedra, Fernández-Galiano has chosen a highly personal and idiosyncratic tack, borrowing the literary device of talking dogs (complete with the surnames of Cervantes's canines) to deliver the following critique of Calatrava's opera house in Valencia.*

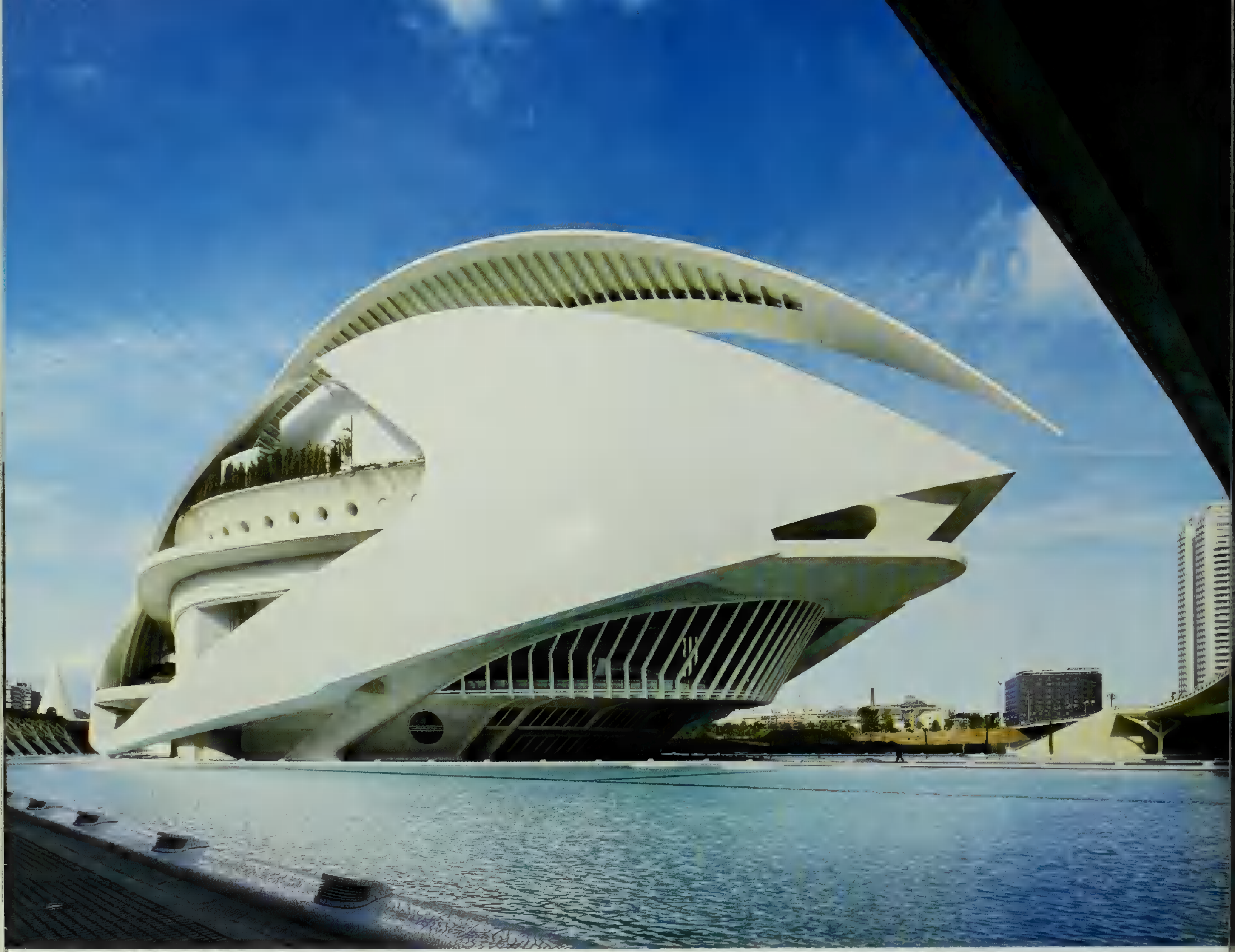
Project: *Reina Sofía Palace of the Arts (Palau de les Arts Reina Sofía), Valencia, Spain*

Architect: *Santiago Calatrava*

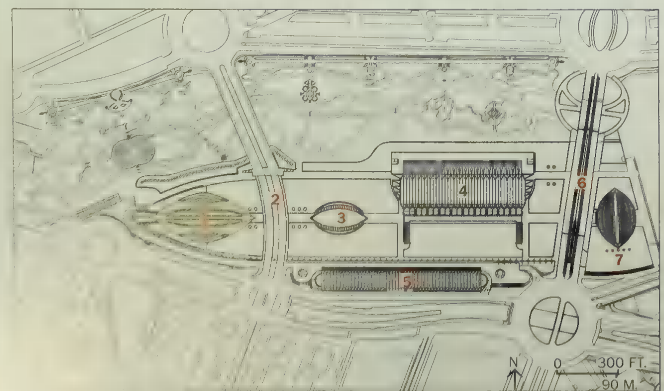
Engineer: *Santiago Calatrava*

General contractor: *Acciona-Dragados*

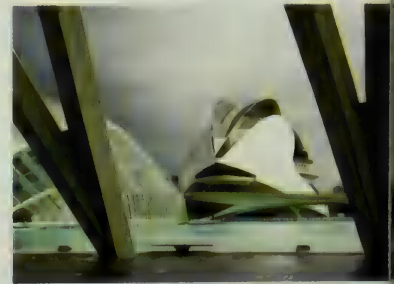
Scenery staging contractor: *Thyssen; Waagner Biro; Chemtrol*

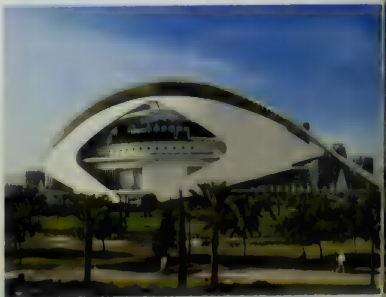


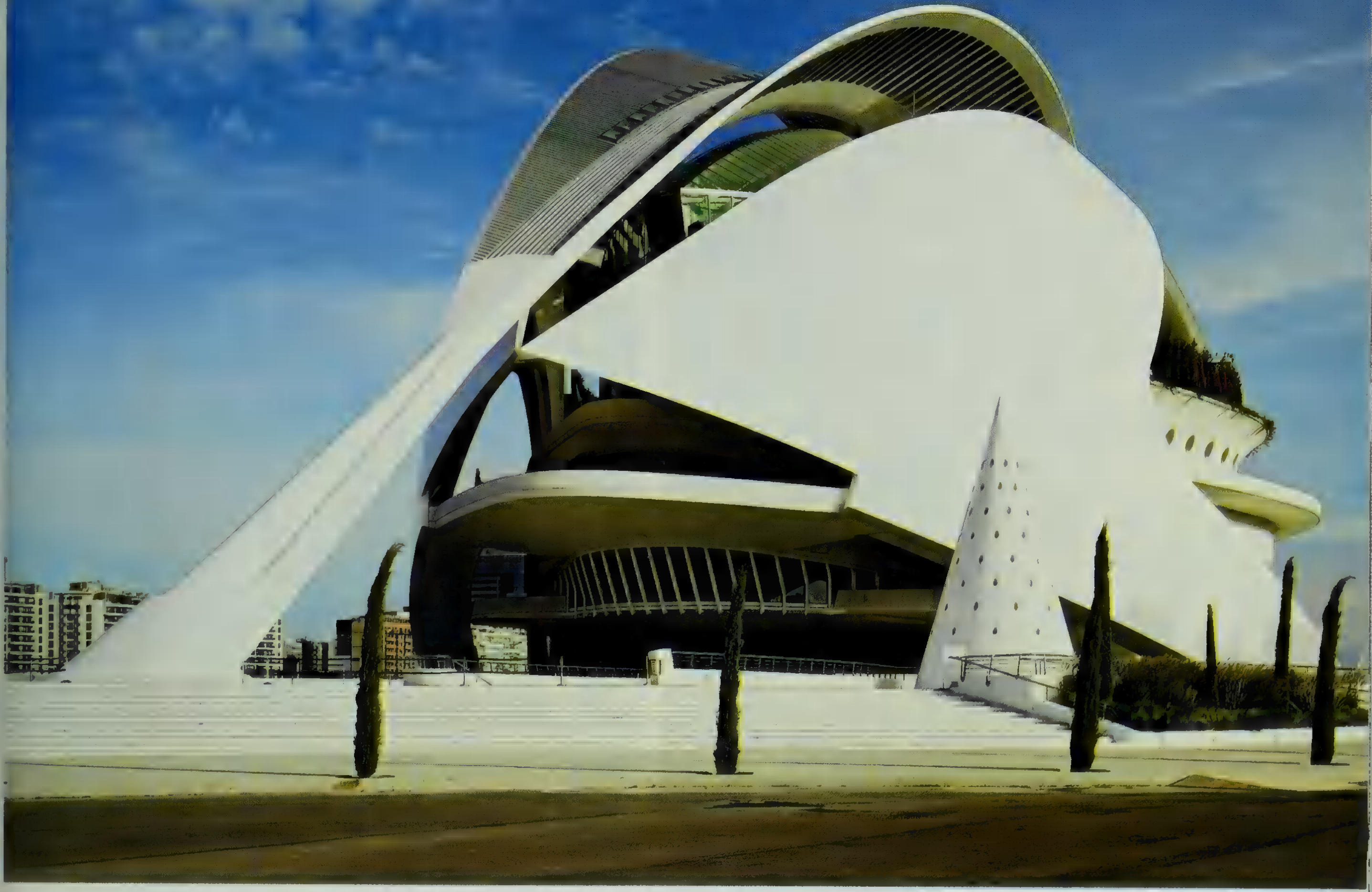
1. *Opera house: Reina Sofía Palace of the Arts*
2. *Monteolivete Bridge*
3. *Planetarium*
4. *Prince Felipe Science Museum*
5. *Promenade and parking structure*
6. *Serreria Bridge (in construction)*
7. *Agora convention hall (in construction)*



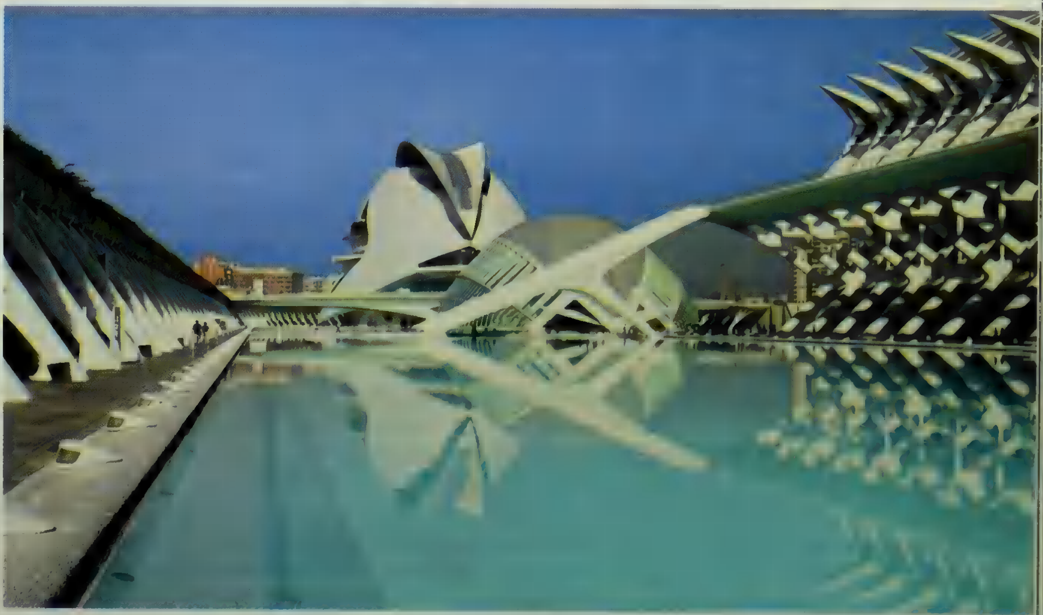
White *trencadís*, a traditional fractured-ceramic mosaic, covers the steel shells over the palace's concrete structure (top). The building has been likened to a spaceship, an eye (below right), and with its steel crest, a warrior's helmet (top and opposite, top). The Hemispheric Planetarium sits just to the east (above right).

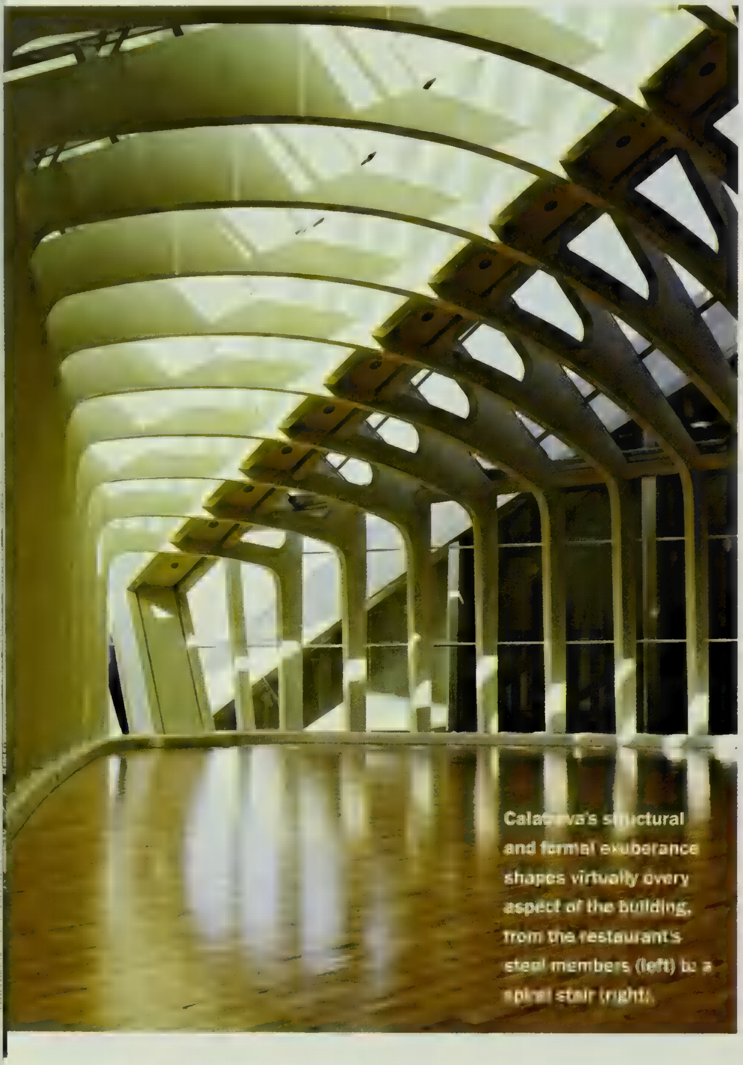
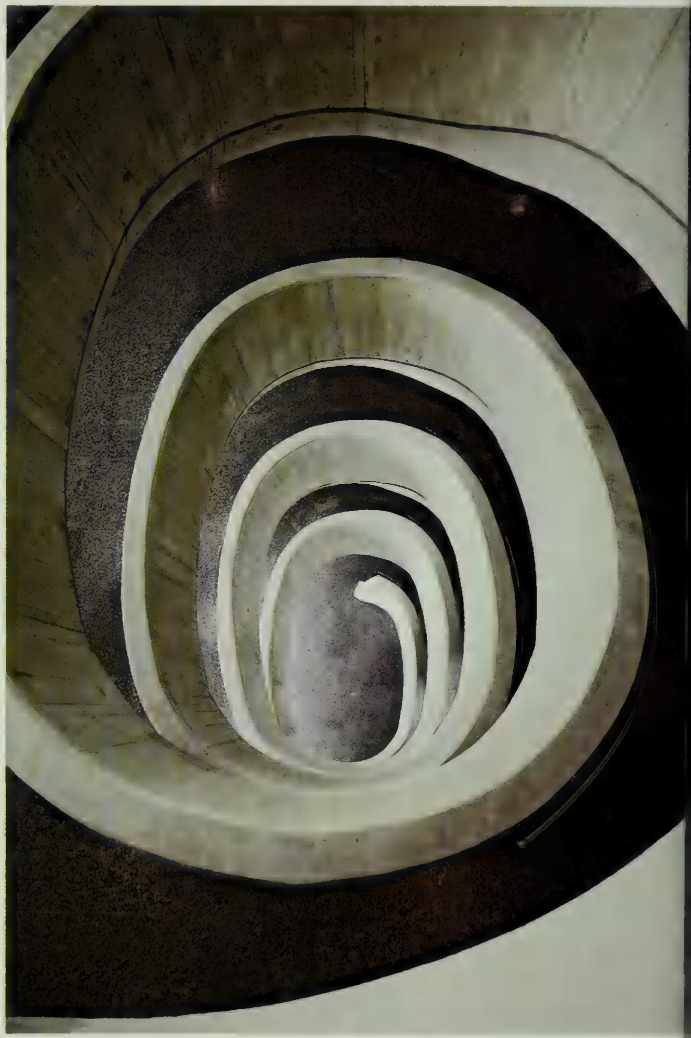






Perforated cones beside the opera house (above) house elevators that connect the street and plaza levels. The Hemispheric Planetarium/IMAX theater evokes a human eyeball, socket, and lid—all set over a vast reflecting pool (right). East of the planetarium, right beside the water, is the longitudinal Prince Felipe Science Museum (at far right in photo, right).



Calatrava's structural and formal exuberance shapes virtually every aspect of the building, from the restaurant's steel members (left) to a spiral stair (right).

CRITIQUE
A dialogue between two dogs in Valencia

By Luis Fernández-Galiano

Whenever he is in Valencia, this critic never misses two rites: a visit to the Lonja, a 15th-century Gothic guild hall, the Mediterranean's finest, by the great master builder Pere Compte, with eight Salomonic columns that soar up to 57-foot-high vaults, where they open like palm trees; and at Malvarrosa beach, a *paella,* the delicious rice dish that blends effortlessly with the mild breeze and blue shadows of noon in this most sensual of lands. This time is no exception, but the familiar venues are shattered by the frenzy of the America's Cup.

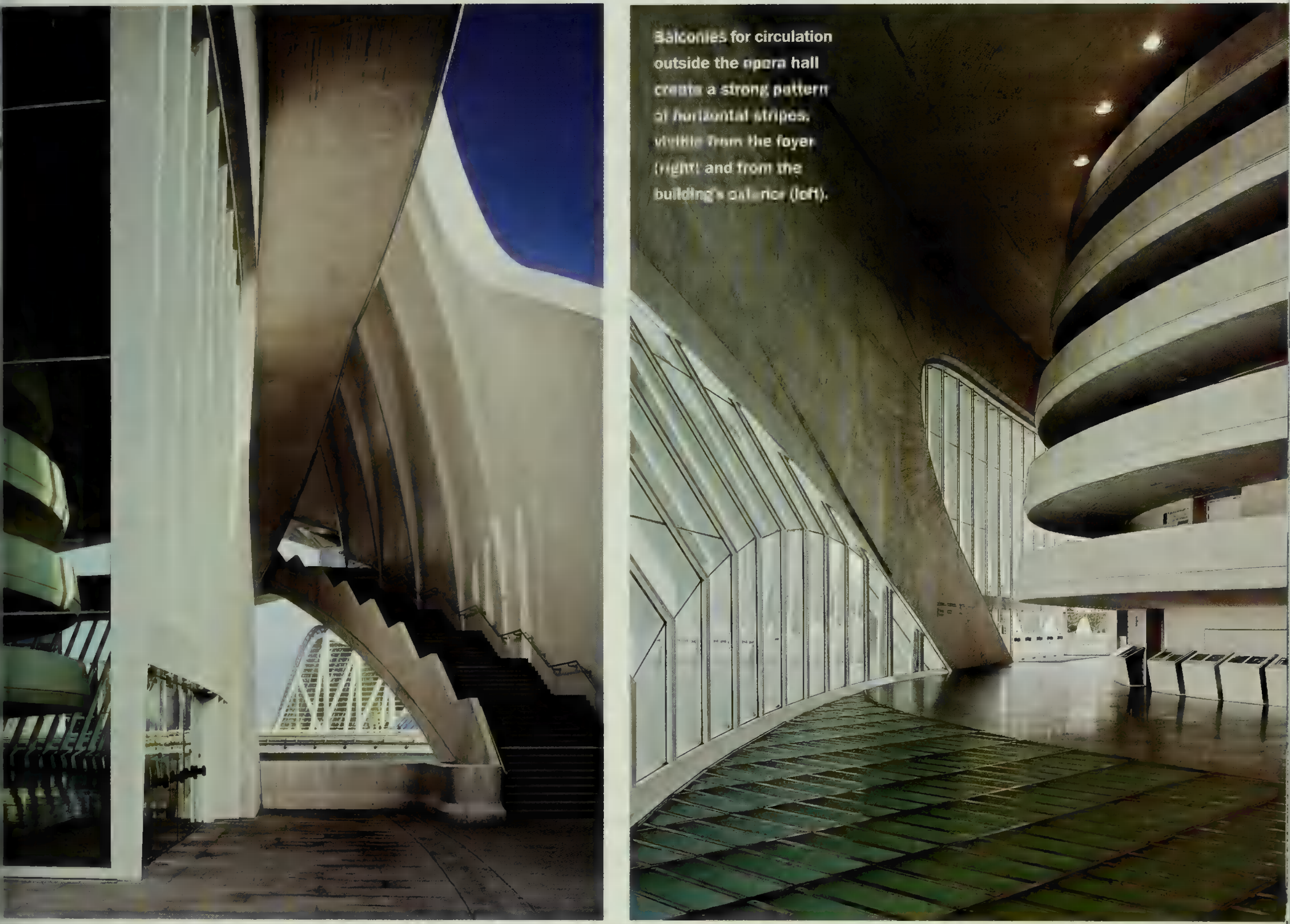
[illegible] sailing boats, poised to challenge the current defender, [illegible] of the crowds gathering on the new port's piers, while VIP visitors take to the cantilevered decks of architect David Chipperfield's laconic America's Cup Building. And in front of the Lonja, all the attention is on the Art Nouveau central market—where Miuccia Prada threw a huge party shortly before her *Luna Rossa* beat the U.S.A.'s *Oracle*—the favorite structure of Formula 1 C.E.O. Bernie Ecclestone, who has announced his proposal for a race-car circuit in Valencia. That new course would link the yacht race scenarios with Santiago Calatrava's City of Arts and Sciences, a colossal complex by the hometown architect that served as a bombastic backdrop for the Pope's visit here last year. After all, the hold of Calatrava on the public imagination is such that his work could not miss the appointment with the pontiff or the largest sports event ever held in the architect's native town.

So it is no wonder that this critic finds himself fatally kidnapped by the celebratory mood, sees Calatrava's turning torsos and Chicago spires in the torqued pillars of the Lonja, finds echoes of his work in the crustacean shells and fish bones of the *paella*, and ends up overhearing the softly barked dialogue of two dogs in the dozing haze of the torpor that follows the meal.

SCIPIO: *Berganza, my friend, it is too hot to roam the beach, and under this woven roof, we can find fresh sand to lie on and perhaps some leftovers to fill the belly, which is already roaring.*

BERGANZA: *Brother Scipio, we shall share whatever we find, but most patrons seem still busy with their meals, so we may have to wait a while.*

Luis Fernández-Galiano edits Arquitectura Viva *magazine.*



Balconies for circulation outside the opera hall create a strong pattern of horizontal stripes, visible from the foyer (right) and from the building's exterior (left).

Scipio: *In the meantime, perhaps you can tell me something about your scouting visit to this huge precinct, which they call City of Arts and Sciences, the most amazing array of structures I have ever seen, and that I have not yet ventured to enter because it fills me with wonder and awe. Is it a good place for us to find shelter and food, and maybe company?*

Berganza: *Abandon all hopes of merry company, as the few dogs I saw there were on leashes, and beware you do not end up laced yourself. Free creatures there were not, and stray dogs would starve in that scorched desert. The colossal buildings leave no places for us to hide or take shelter, rubbish is scant and hardly edible, as if visitors to these temples fed on plastic. Only the crowds of schoolchildren leave a decent trail of half-munched sandwiches. No, these seaside sheds are much better for dogs like you and me.*

Scipio: *I hear you call them "temples," and I imagine you mean the structures are so vast and monumental that they are fit for the cult of gods, although which kind of gods I do not know. Not the god of dogs, to be sure!*

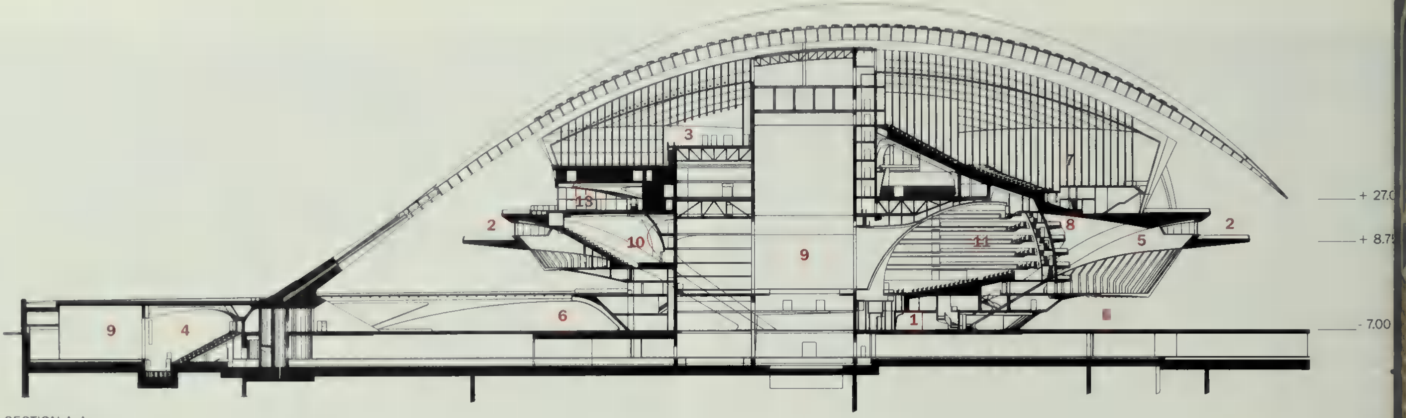
Berganza: *Our god is a patch of shadow and a crust of bread. Theirs are more imposing, Science and Art, though from what I could see, the Museum of Science is mostly concerned with entertainment, and the just-reopened Palace of the Arts is dedicated to spectacle, the most significant being the building itself, moored to the site like a big spaceship lost on a stellar voyage.*

Scipio: *But friend Berganza, by questioning entertainment and spectacle as the purpose of this monumental endeavor, you are behaving like a hard-to-please preacher for whom nothing is sufficiently holy.*

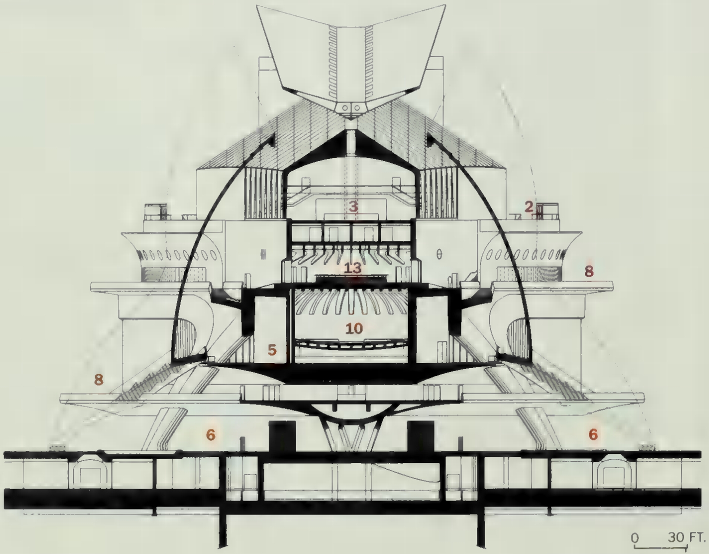
Berganza: *Maybe you are right, Scipio, and we should not complain about the gods of humans, however shallow. After all, we are not footing the bill, and the $454 million for the palace would not have been spent on food and shelter for us dogs, anyway! Our only hope is to become sacred animals in a new religion started by a lover of pets.*

Scipio: *A pet I do not aspire to become, and with regard to religion, is not music a worthy object of cult? If you take away the 760-foot-long steel beak that hovers atop the palace and the two huge shells faced with white trencadís—outer parts that resemble the exoskeleton of lower creatures—it seems you are left with a rather conventional opera house, horseshoe-shaped balconies and all. This much I have been told. But I know you once managed to find your way in there, and can offer more details. Beyond the spectacular profile, is there a good hall where music can be performed and revered by all those who find nothing more worthy of devotion? You know, it is said that temples to sound must be judged with one's eyes closed.*

Berganza: *Closed indeed, because these large Italian "horseshoe" theaters have many seats from which you can hardly see the stage, and opera audiences have the dismaying habit of seeking pleasure for the eye. Only if someone can convince them to keep their eyes shut will the building obtain the applause it undoubtedly deserves. I myself did not manage to get in, but lurking around the openings, sniffing for morsels from the catering staff, has given me some hints.*

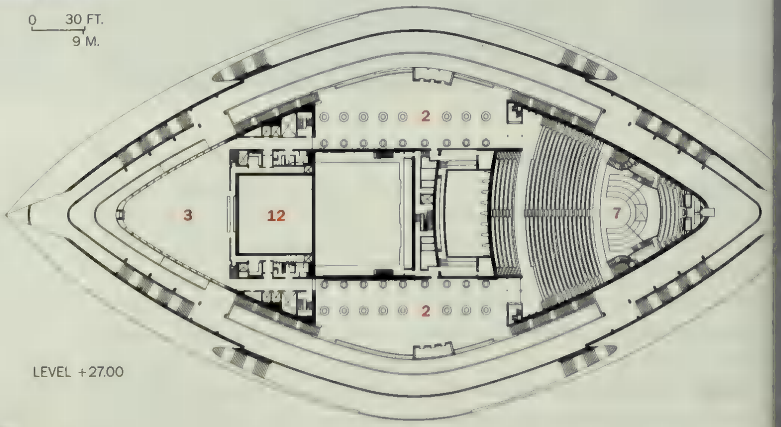


SECTION A-A



SECTION B-B

1. *VIP entrance*
2. *Terrace*
3. *Restaurant*
4. *Theater*
5. *Foyer*
6. *Exterior public space*
7. *Upper auditorium*
8. *Balcony*
9. *Stage*
10. *Magistral Hall*
11. *Principal theater (opera)*
12. *Void*
13. *Cafeteria*



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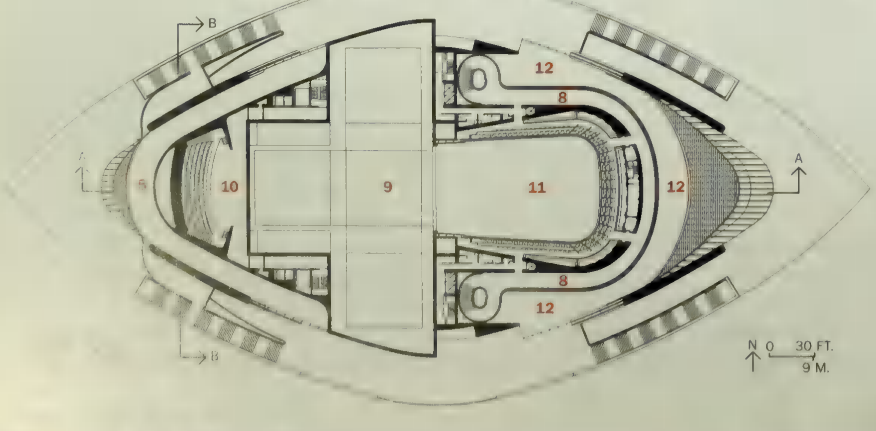

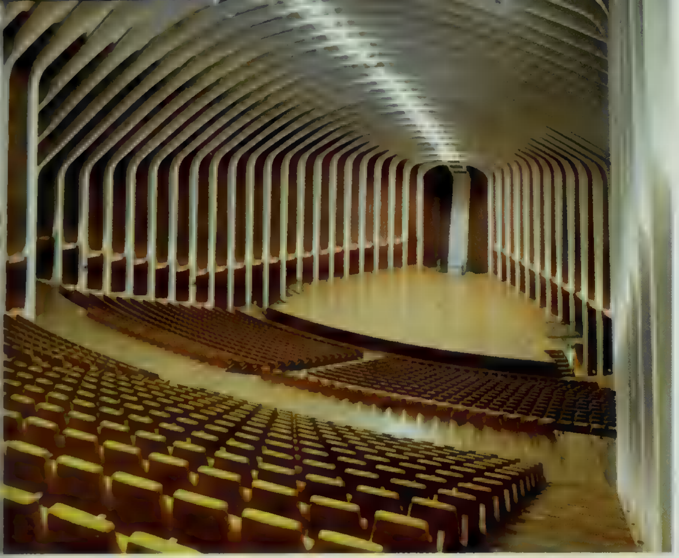

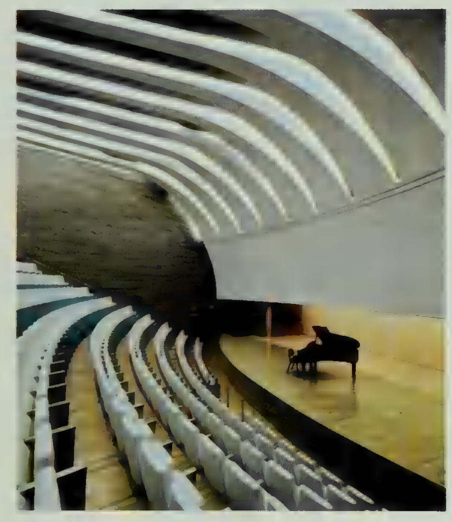

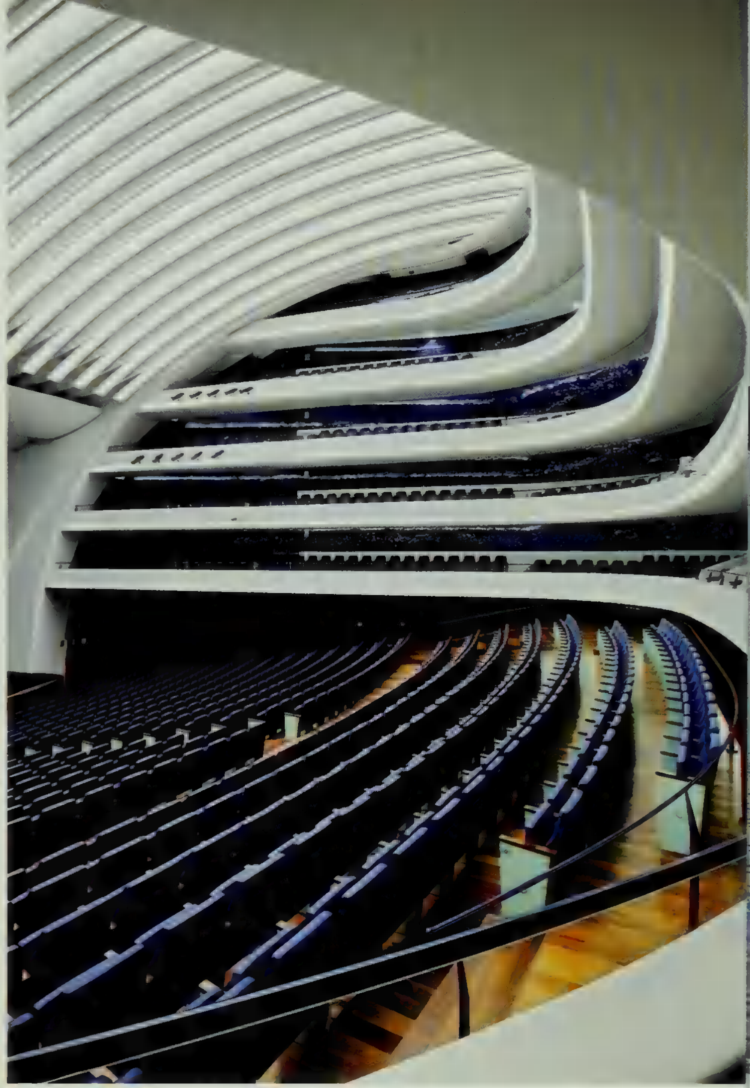

Each of the building's four performance spaces—including the upper auditorium (above), opera house (far right), and Magistral Hall (near right)—has its own character, not just in color and form, but also in the expression of structural members and dynamic patterns of repeated elements.

Scipio: *A few choice tidbits, and you argue like an expert music critic! But I can feel you are in a satiric mood, and must ask you to watch of your tongue. As my namesake in the Cervantes story said, "I will allow you to gossip a little, as long as it is to enlighten rather than draw blood."*

Berganza: *My friend, Scipio, you accuse me of highfalutin arguments, and now you back your claims with literary quotations! But kindly allow me to gossip a little and indulge myself in some idle commentary, as it was my privilege to overhear a dialogue between the music critics for the two main newspapers in Spain when the Palace of the Arts was inaugurated in October 2005.*

Scipio: *I did not know you were in Valencia then! The Queen came for the dedication and a Spanish program that featured fragments of* Carmen *under the baton of Lorin Maazel. But the building, the architects say, was not truly completed yet and, after that ceremony and single performance, the theater closed again until recently.*

Berganza: *Yes, I was already here then, and can see you have a good memory. That inaugural event was, indeed, as a pedant would say, infelicitous, and the critics were dismayed. Straining my ear, I captured bits like "culture of appearances," "empire of the ephemeral," "vanities," "exhibitionism," "fireworks," and "culture of squander" from the* El País *critic; and "the worst is what cannot be mended," "when I entered the hall I turned into stone," "one cannot build a 21st-century theater following the rules of the 18th and 19th," and "never in my life have I faced such a disappointment," from the music critic of* El Mundo. *A rare unanimity, if I may say so.*

Scipio: *Has it been any better this time? Despite the many limited-visibility seats and a mishap that disabled the stage machinery for most of the season, I have heard, the program has been very ambitious, launching Wagner's entire* Ring Cycle *in a new production by Zubin Mehta and La Fura dels Baus (the avant-garde group from Barcelona that, I am told, combines spectacle with ritual, sculpture, music, theater, and audience participation). Even a music-ignorant canine like myself can see they're trying to make a splash.*

Berganza: *And successfully, from what I hear, with Juha Uusitalo as Wotan and Jennifer Wilson as a Brünnhilde with shades of Papagena. No roles for dogs, I'm afraid, even talking ones like ourselves. Maybe Wagner and La Fura blend well with the grandiloquence of Calatrava, who knows?*

Scipio: *A spectacle, at the very least. If the Pope, America's Cup, and Ecclestone's Formula 1 all want Calatrava as a backdrop, this surely means something. Icons may be trivial and expensive, but why do cities compete for them?*

Berganza: *Oh, enough about architecture. I see a benevolent waiter leaving the remains of the meals on top of a newspaper, and my bowels are killing me!* ■

For sources, see page 124.

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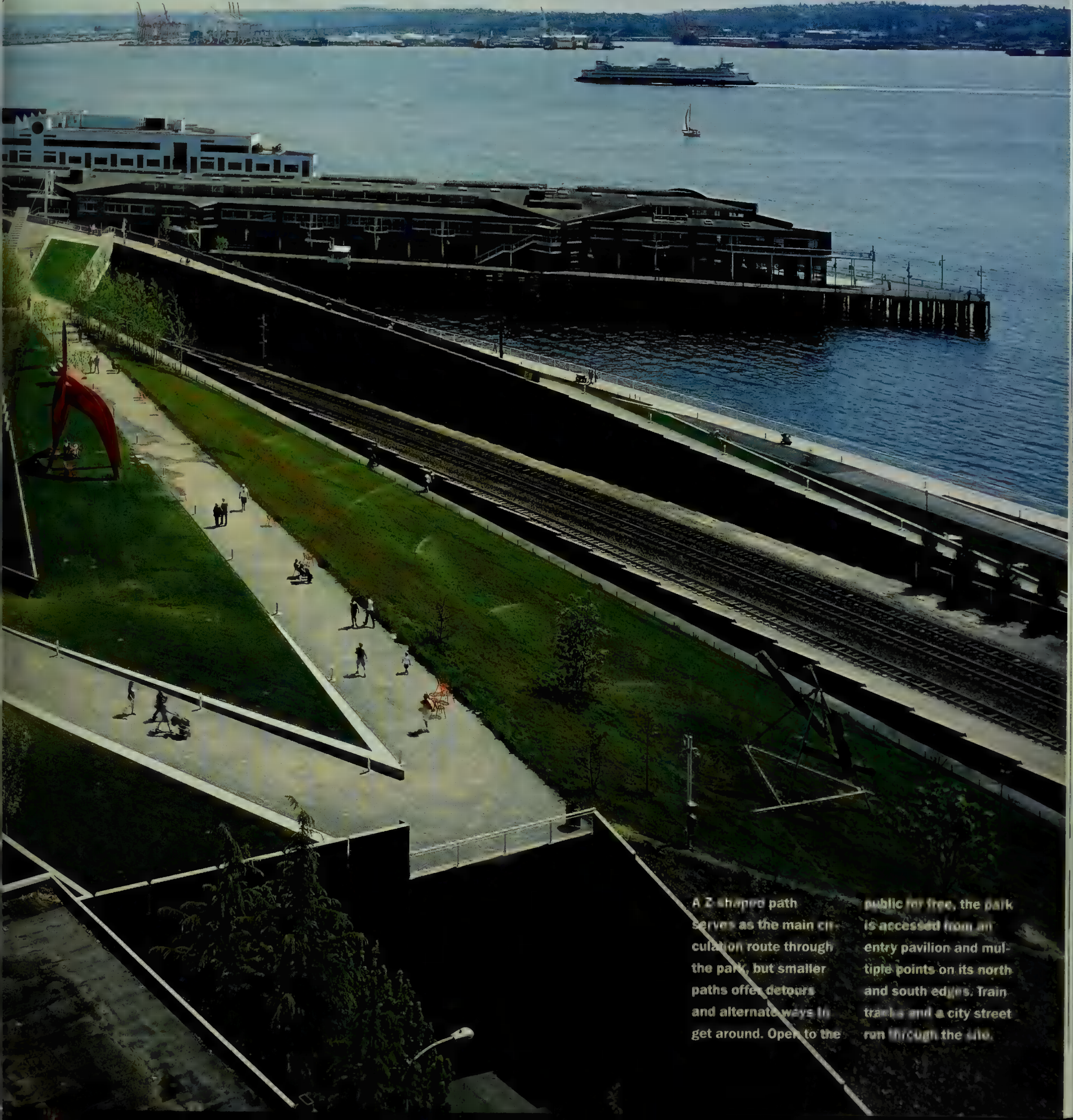
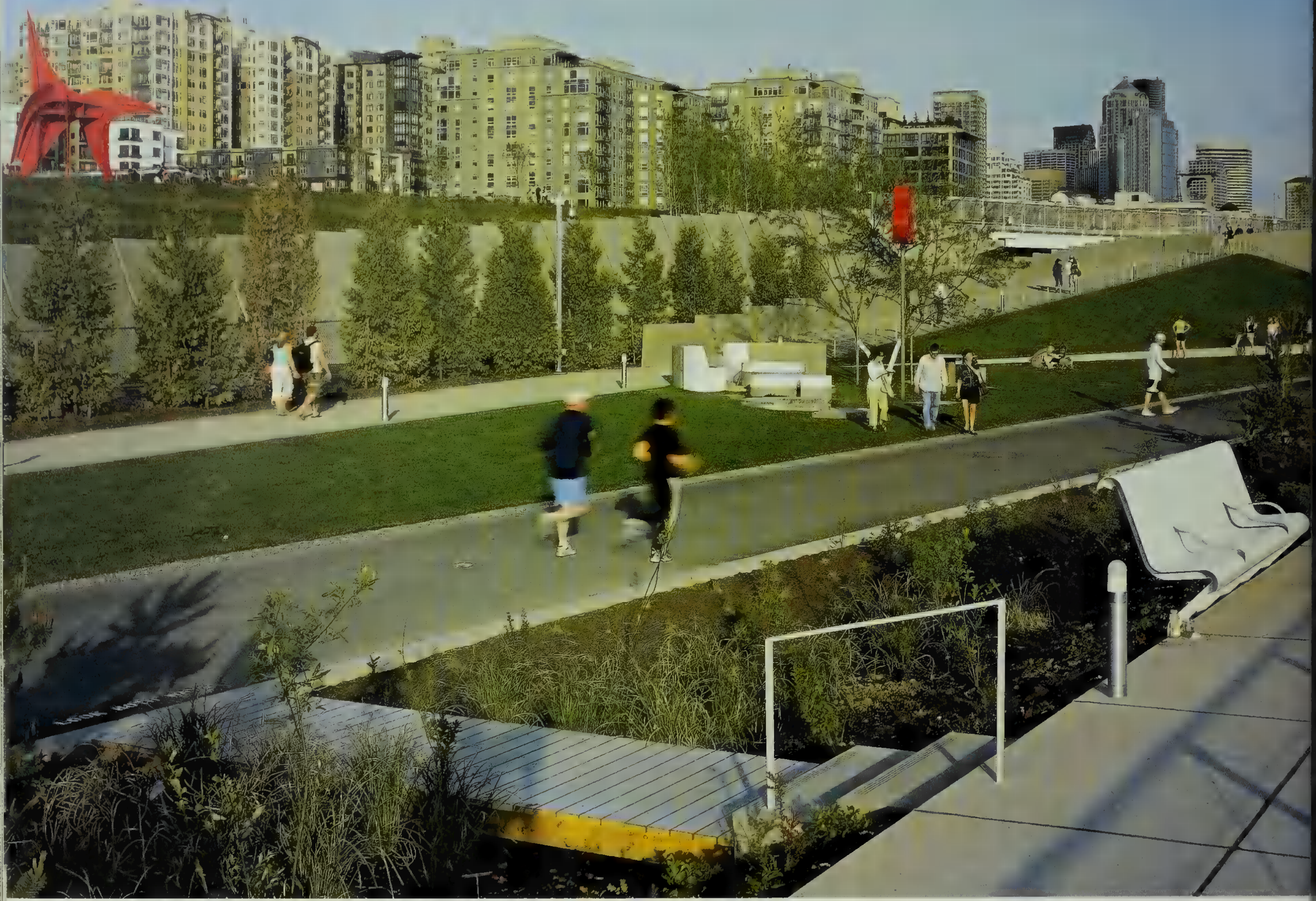
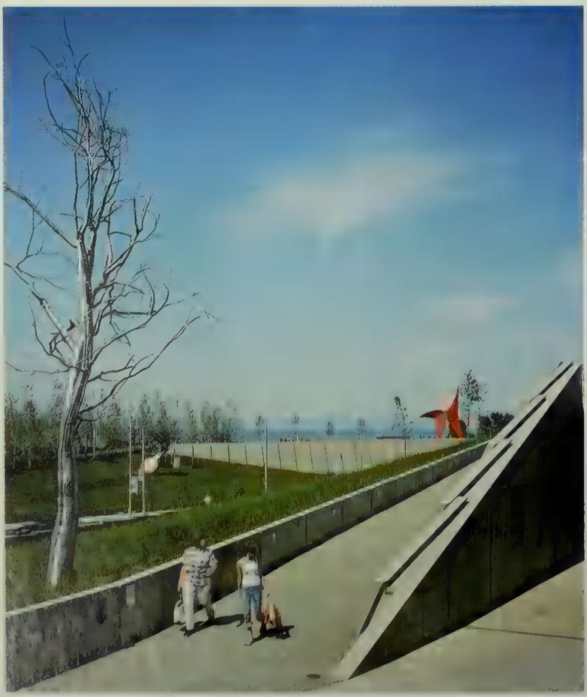
Weiss/Manfredi weaves the OLYMPIC SCULPTURE PARK and its mix of art and design into the urban fabric of Seattle

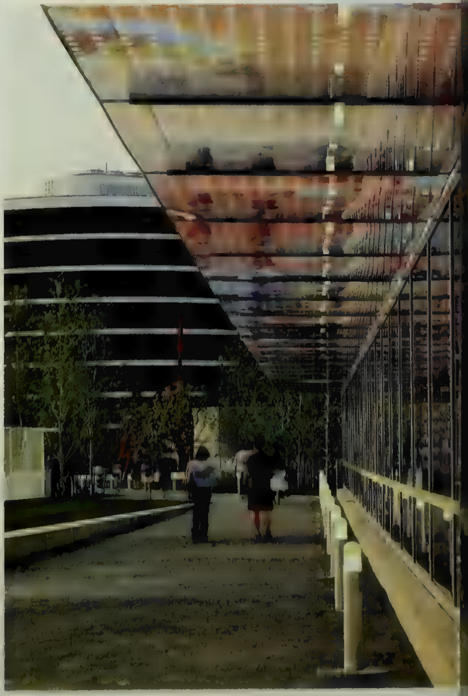


A Z-shaped path serves as the main circulation route through the park, but smaller paths offer detours and alternate ways to get around. Open to the public for free, the park is accessed from an entry pavilion and multiple points on its north and south edges. Train tracks and a city street run through the site.

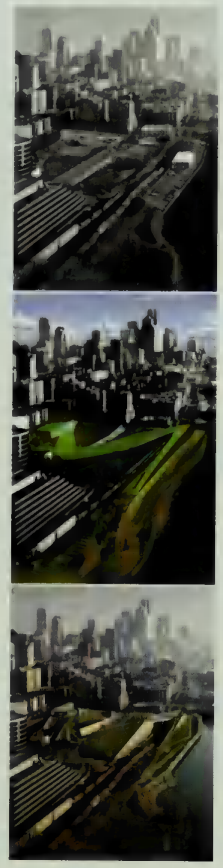


A waterfront promenade (above) stays open all the time, providing a connection to Myrtle Edwards Park to the north. The art will change over time, but current pieces include a steel tree by Roxy Paine and Alexander Calder's *Eagle* (both shown near right) and Teresita Fernández's *Seattle Cloud Cover* (far right), which graces the rail bridge (opposite, bottom).





By Clifford A. Pearson



For most of the 20th century, the 8.5-acre site served as a fuel storage and transfer facility, cutting off the city from its waterfront (top right). Weiss and Manfredi's original scheme (center right) envisioned a continuous landscape that would negotiate the 40-foot drop from the east edge of the site to the water. As built, the park (bottom right) not only provides a venue for art, but includes a new seawall that provides habitat for salmon and a rugged beach on the north that catches large drift logs.

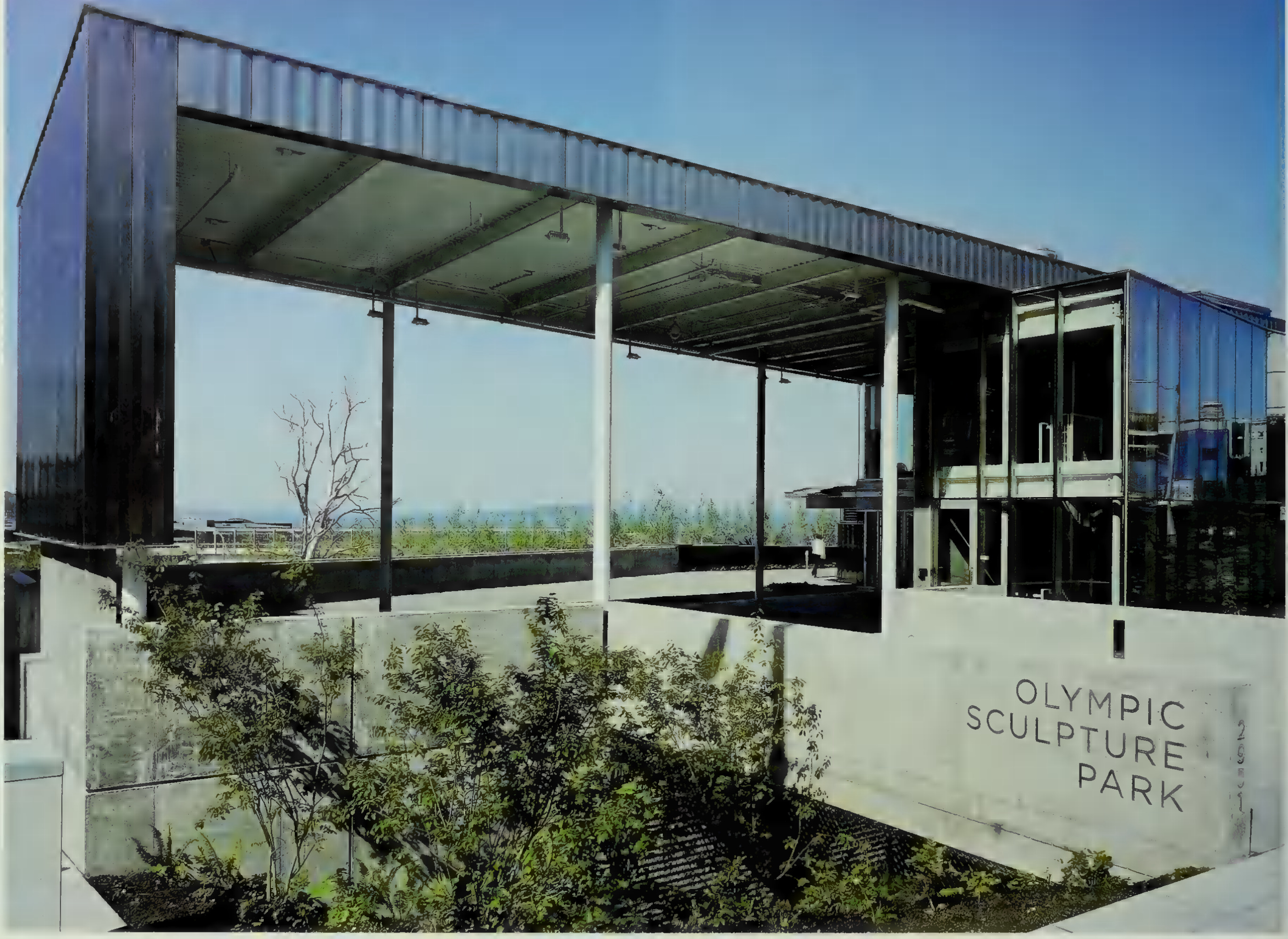
Architects talk a lot about "landscape" these days, using the word in so many different ways it's often hard to know what they mean. Is the reference literal or metaphorical? Does it encompass buildings as well as landforms? Is it just a fancy way of saying "context"? Marion Weiss, AIA, and Michael Manfredi, FAIA, have spent most of their careers wrestling with this slippery concept, from their Women's Memorial at Arlington National Cemetery, in Virginia (which tucks a modern exhibition and conference facility behind a historic hemicycle retaining wall), to the Museum of the Earth, in Ithaca, New York (which cascades down a hillside, creating a kind of artificial gorge). Their design of the $85 million Olympic Sculpture Park in Seattle takes the notion of combining architecture and landscape even further, adding art and infrastructure to a heady mix of components. While some architects have tried to blur the lines between these disciplines, Weiss/Manfredi has knitted them together here, so you can see the seams and the stitches.

The sculpture park occupies a spectacular 8.5-acre site adjacent to the gentrifying Belltown neighborhood and overlooking Puget Sound. But for most of the 20th century, the property served as a fuel storage and transfer facility for Union Oil of California (UNOCAL). In the 1990s, UNOCAL worked with the state to remove 120,000 tons of petroleum-contaminated soil, then prepared to sell the site to developers wanting to put up condos. The Seattle Art Museum, though, had a different idea for the parcel, and with a sizable donation from its chairman, Jon Shirley (who had been president of Microsoft), it bought the land in 1999 for $17 million to create an outdoor venue for showing sculpture. It held an international design competition in which 52 firms participated and selected Weiss/Manfredi on the strength of a scheme (middle left) that uses a Z-shaped path to define a series of zones for displaying art, and to take visitors from the city's edge to the waterfront.

The site, however, posed serious challenges for the designers. Although UNOCAL had already removed the contaminated soil, contractors had to bring in new soil, rebuild a seawall, and create an underwater habitat for young salmon. [For more on the design of the retaining walls and seawall, turn to page 159.] The property also came with active railroad tracks and a major street (Elliott Avenue) slicing through it. Running parallel to the water, the railroad and the street—which had to stay open during and after construction—essentially cut the site into three pieces. Weiss and Manfredi addressed these obstacles with their zigzagging path, a simple but visually powerful device that bridges first Elliott Avenue, then the railroad, and serves as an essential element unifying the entire scheme. They emphasized cuts in the land where the street and railroad run below by building retaining and supporting walls out of angled, sloping panels of precast concrete, a strategy that also enhances a sense of layering.

"There weren't many models of outdoor art venues in an urban setting," says Manfredi, recalling his firm's search for precedents when it started designing the project. Most of the best-known sculpture parks, such as Storm King Art Center in Mountainville, New York, are in bucolic set-

Project: *Olympic Sculpture Park, Seattle, Washington*
Owner: *Seattle Art Museum*
Architect: *Weiss/Manfredi Architecture/Landscape/Urbanism—Marion Weiss, AIA, Michael Manfredi, FAIA, design partners; Christopher Ballentine, project manager; Todd Hoehn, Yehre Suh, project architects; see* RECORD*'s Web site for design team*
Engineers: *Magnusson Klemencic Associates (structural, civil); ABACUS (mechanical/electrical)*
Consultants: *Charles Anderson (landscape); Aspect (environmental)*
General contractor: *Sellen Construction*



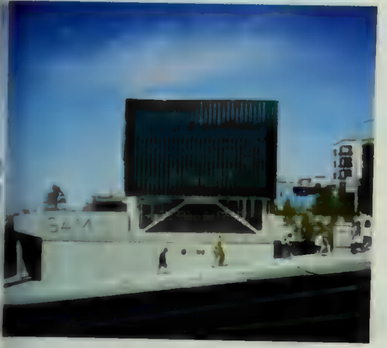
The entrance to the pavilion frames views of the water (top). Neither Richard Serra's *Wake* (left) nor Calder's *Eagle* (below) were commissioned for the park, but both have already become closely identified with it.

tings. Even the Hirschhorn's sculpture garden in Washington, D.C., seems removed from the city as sited in a sunken plaza off the national mall.

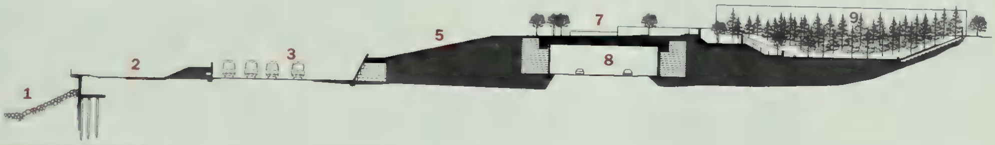
"The two obvious approaches to the [Seattle] site," explains Weiss, "were to create three gardens connected by bridges or to treat it as one platform built over the tracks and road." But Weiss and Manfredi didn't like either of these options. Instead, they decided "to create a new topography" that would negotiate the 40-foot drop from the eastern boundary of the park (on Western Avenue) to the water's edge on the west, while orienting different parts of the park to particular views of the mountains, the water, and the city. By angling the zigzagging path, the architects created forced perspectives that make distances look longer and the site bigger. They also decided at the very beginning that the trains and cars moving through the landscape would be important elements in the park. "We weren't going to be ashamed of them," states Manfredi.

"I love the way Marion and Michael embraced the urban infrastructure and captured the energy of the city," states Mimi Gardner Gates, the director of the Seattle Art Museum. To that end, the architects not only opened views to the passing cars and trains, but used industrial materials such as precast concrete for retaining walls, poured concrete for a stair and tower at the western end of the railroad bridge, and glass and steel for the bridge itself and an entry pavilion at the top of the site.

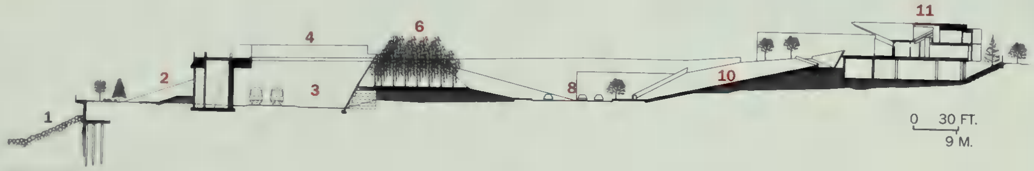
"Before we had thought of a sculpture park, we were looking for a way to get art into the community," recalls Gates. The effort developed into a sculpture park when Shirley and fellow museum-board member



A 50-car parking structure and its entry ramp are tucked under the pavilion (above). The split roof and glazing of the pavilion form a kind of folded landscape (below) that recalls the Z-shaped path running through the park itself. The building and the park also share a similar palette of industrial materials.

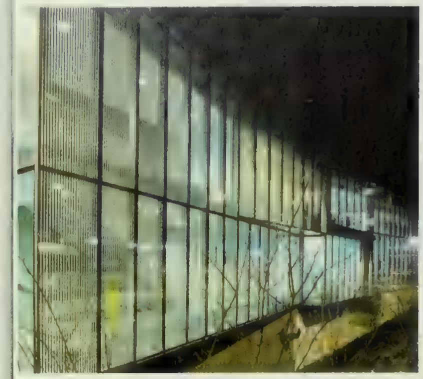


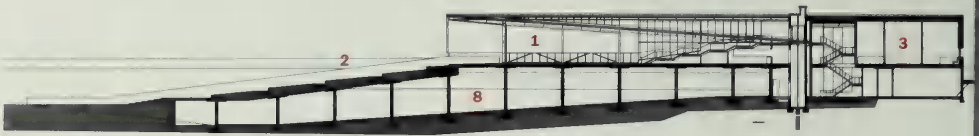
EAST-WEST SECTION 1



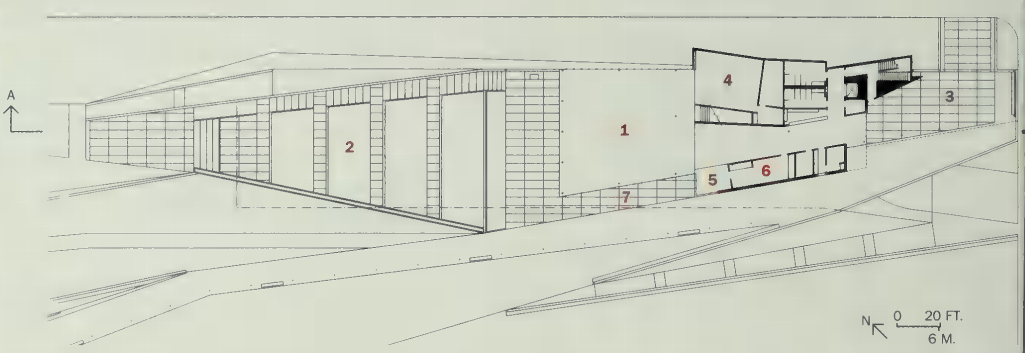
EAST-WEST SECTION 2

1. *Restored shoreline and aquatic habitat*
2. *Shoreline precinct*
3. *Rail line*
4. *Rail bridge*
5. *Meadow*
6. *Grove precinct*
7. *Elliott Avenue bridge*
8. *Elliott Avenue*
9. *Valley precinct*
10. *East meadow*
11. *Pavilion and garage*





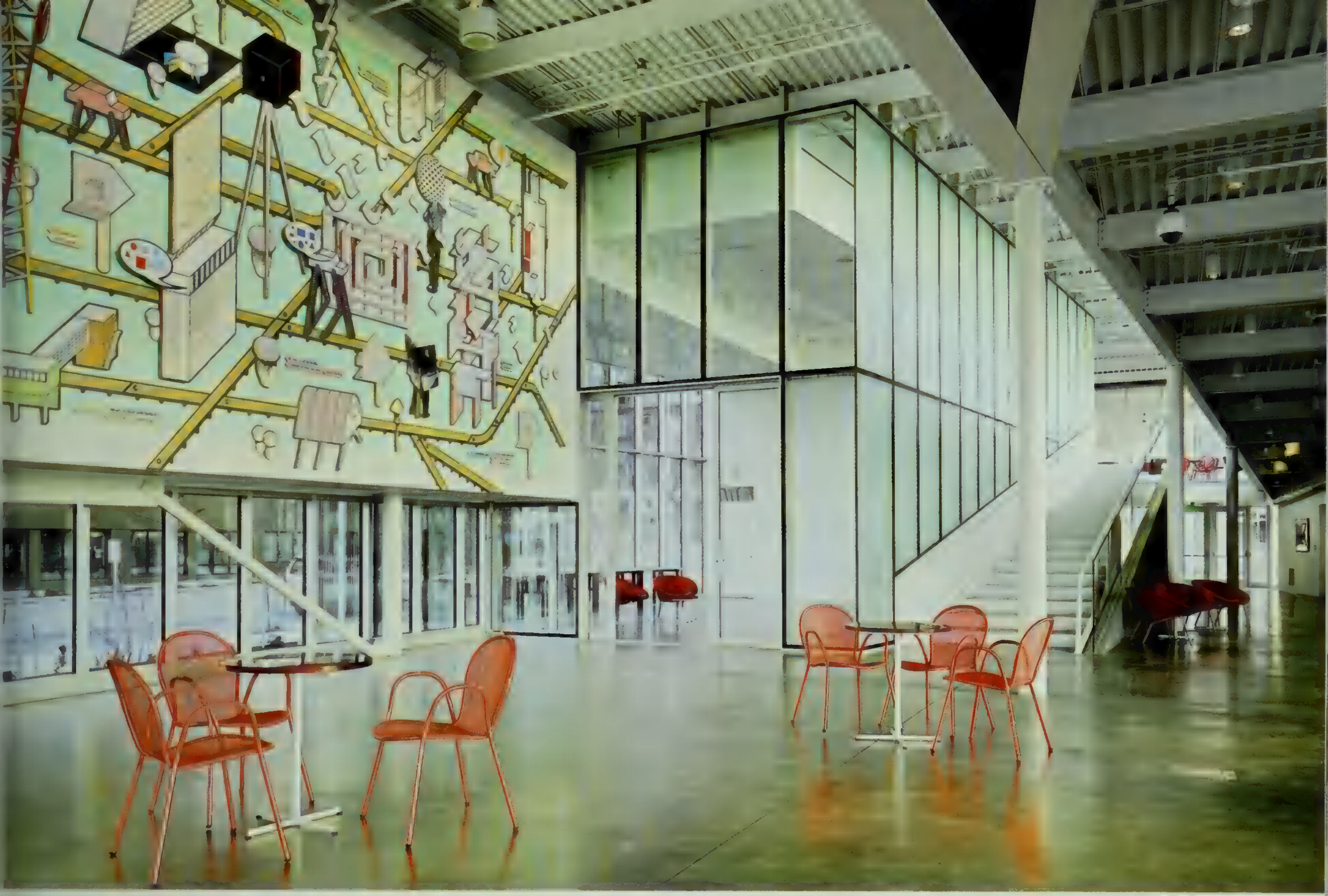
SECTION A-A



MAIN LEVEL

On the eastern side of the pavilion, a custom glass facade with vertical strips of translucent mirror captures a sense of movement during the day and glows at night (above). The architects wanted the design vocabulary in the park to "migrate" inside the pavilion (below).

1. *Exhibition*
2. *Amphitheater/ terrace*
3. *Entry plaza*
4. *Classroom*
5. *Café*
6. *Servery*
7. *Outdoor café*
8. *Parking*



The main floor of the 34,000-square-foot pavilion provides space for exhibitions and events, seating for the café, a glazed classroom, and a pictorial work by Pedro Reyes entitled *Evolving City Wall Mural* (above).

Virginia Wright offered parts of their collections of outdoor sculpture and the Trust for Public Land in Seattle identified the UNOCAL site as an ideal location. "We saw the park as a catalyst for change," explains Chris Rogers, who had worked for the Trust for Public Land and now is the museum's director of capital projects. "It was a way of moving the city to the water."

Weiss/Manfredi's strategy was to create a continuous landscape whose folds and turns create a series of outdoor rooms for a range of Modern sculptures and native plantings. Some of the artworks were commissioned for the park, including Mark Dion's *Neukom Vivarium* (a 60-foot-long nurse log set inside a greenhouse) and Teresita Fernández's *Seattle Cloud Cover*, whose panels of colorful film set within glass run the length of the bridge crossing the train tracks. Other pieces, such as Richard Serra's *Wake* and Alexander Calder's *Eagle*, have been sited so well they seem to have been created specifically for the park. The plantings tell a mountains-to-sea narrative, as they move from the higher, city side of the park to the waterside, says Rogers. So visitors find western red cedars, hemlock, and Douglas fir near Western Avenue, quaking aspen trees in a grove surrounding Tony Smith's *Wandering Rocks* and *Stinger*, and a tidal garden of kelp, algae, and other intertidal-zone plants at the shore.

Like the park itself, the entry pavilion on Western Avenue works as a folded landscape with angled roofs creating a metal topography and forced perspectives to views of the land and sound. The 34,000-square-foot pavilion houses exhibition space, a café, and a museum shop on the ground floor, and offices upstairs. The architects tucked parking for 50 cars below the pavilion. On the city elevation, corrugated steel and glass containing vertical strips of translucent mirror create a visual rhythm that echoes the movement of cars and pedestrians. On the park side, the building becomes more transparent, with 18-foot-high glass doors opening to a stepped terrace in front of Serra's monumental Cor-Ten ripples.

Although continuous, Weiss/Manfredi's landscape is episodic, offering a series of discrete spatial experiences as visitors move, for instance, from the walled gardens west of the Serra to the wide greensward leading to the bright-red Calder and ultimately to a driftwood-strewn beach. Elements connecting the various spaces—such as the bridges, the concrete stair off the train bridge, and the precast retaining walls—give scale to the landscape while acting as exposed seams. Animating these seams are the trains and cars that zip below and past them. This is an urban park that doesn't take you away from it all as much as put you in touch with things you didn't know could work together: sculpture, trains, quaking aspens, slabs of precast concrete, and a Z-shaped gravel path. ■

For sources, see page 124.

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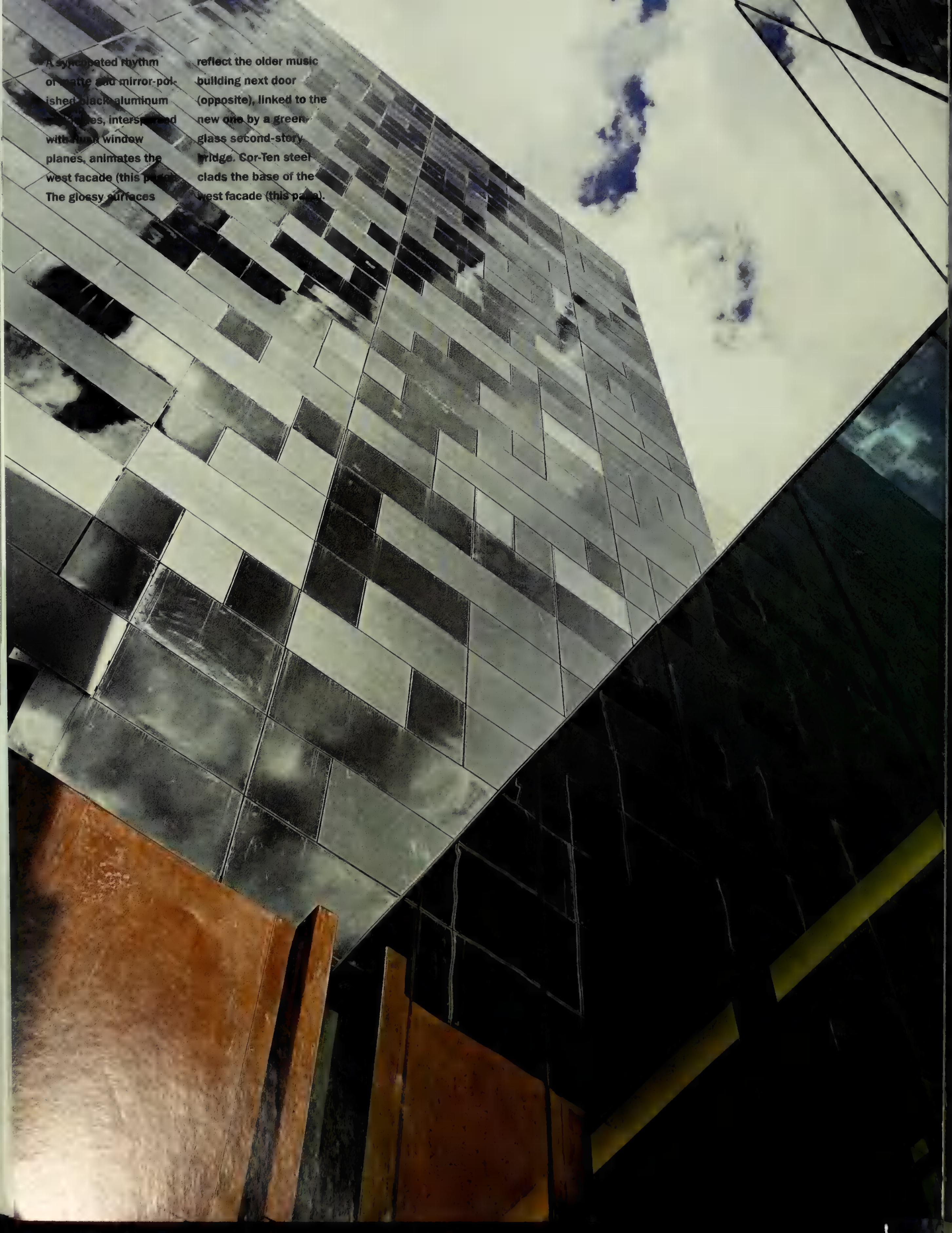
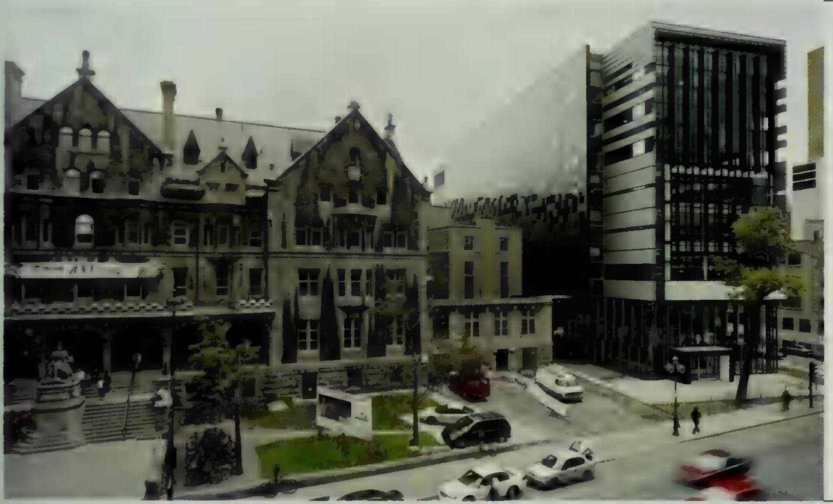
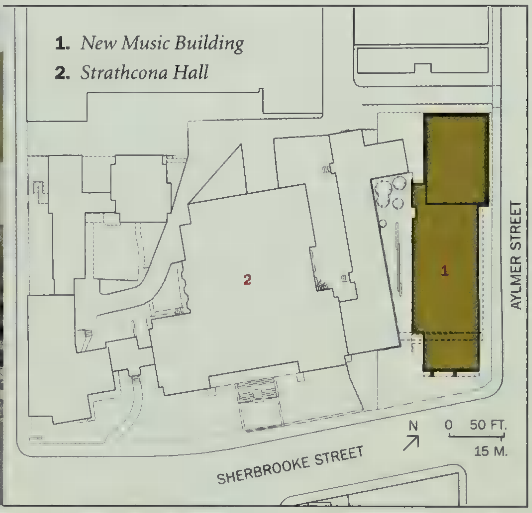
A syncopated rhythm of matte and mirror-polished black aluminum [illegible], interspersed with flush window planes, animates the west facade (this page). The glossy surfaces reflect the older music building next door (opposite), linked to the new one by a green-glass second-story bridge. Cor-Ten steel clads the base of the west facade (this page).



Tapping into the rhythms of the city, **Saucier + Perrotte** compose the **NEW MUSIC BUILDING** for McGill University, in Montreal





By Sarah Amelar

Unexpected edge conditions and juxtapositions characterize not only the location of McGill University's New Music Building (NMB—until it gets a donor name), but also the complexities of the department itself. The site, a sliver of land at the southeastern corner of the 80-acre campus, lies at an intersection along Sherbrooke Street, a busy commercial strip in downtown Montreal, where the visual clamor of fast-food joints, upscale restaurants, and high-rise chain hotels competes with the rush of automotive traffic and the underground rumble of nearby subway lines. Hardly the obvious spot for a recital hall and acutely sensitive recording studios. But the parcel also happens to border the university's main music building, the ornate limestone Strathcona Hall (with its earliest section, circa 1899, designed by Bruce Price in "British Château" style). And it was essential that the new structure connect with the old programmatically and spatially.

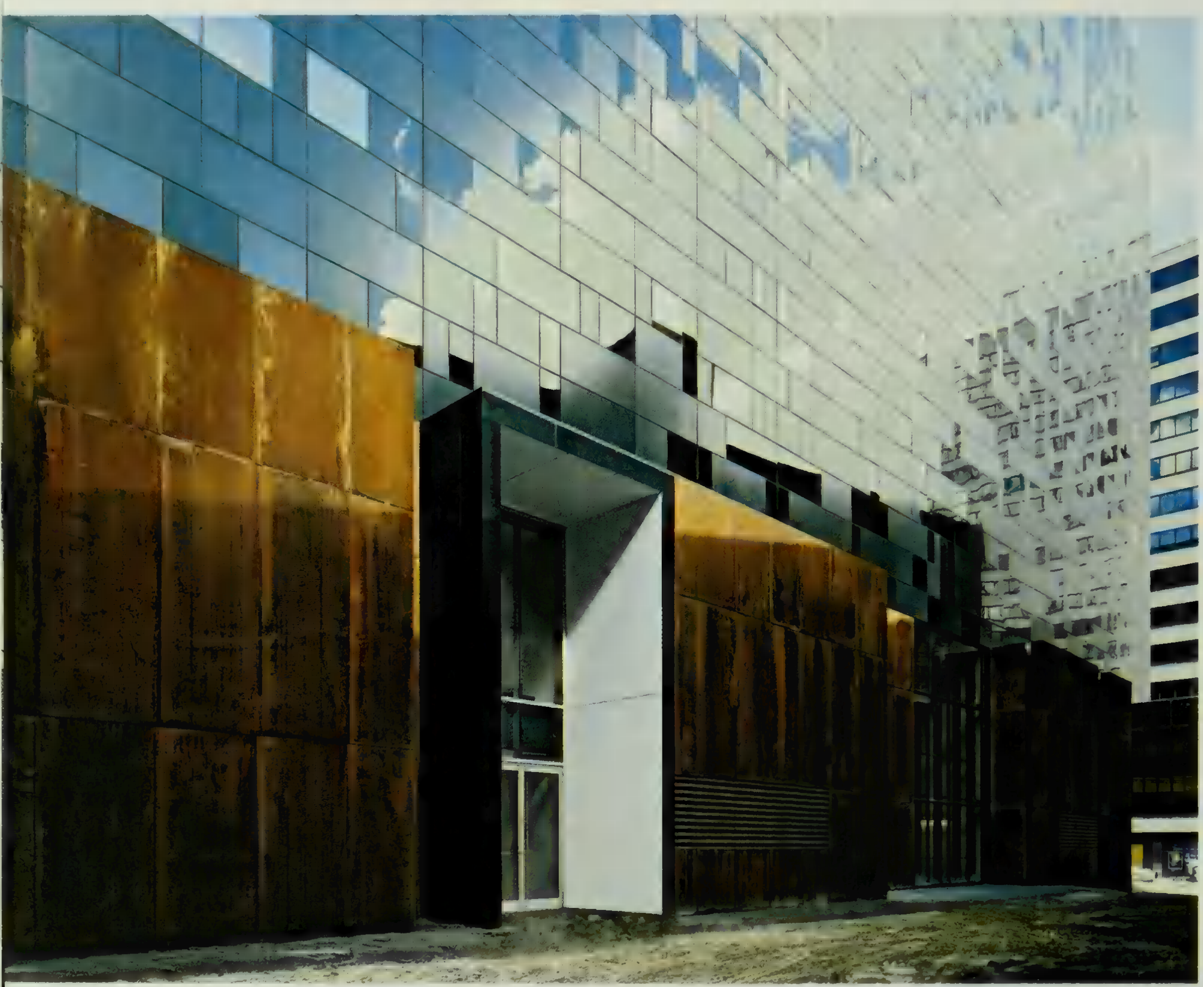
Adding to an already complicated mix of site adjacencies, the new, $30 million building, by architects Saucier + Perrotte with Menkès Shooner Dagenais Architectes, had to engage a department drawn from a remarkable range of disciplines. While McGill's music school, with both undergraduate and graduate programs, takes pride in its traditional conservatory and such humanities-based studies as musicology, its staff and faculty run the gamut from respirologists to physicists, neuroscientists, psychologists, and computer, sound, and electrical engineers—often approaching music from places deep in the realms of science and technology.

So where to begin? Working from the outside in and inside out, Saucier + Perrotte principal Gilles Saucier took cues simultaneously from the campus configuration, the urban context, the local topography, and an evolving set of interior spatial needs.

Saucier recognized that while Sherbrooke Street speaks of a bustling downtown, the quieter, perpendicular Aylmer Street, defining the parcel's eastern edge, reveals key aspects of the landscape. Like a topographic section cut, Aylmer ascends a hill from the St. Lawrence River and Montreal's Old City, to the south, continuing along a plateau as it extends through the McGill campus, gradually rising to the small but iconic mountain called Mont Real. The site occupies the relatively flat transition zone between urban density in its immediate foreground, and a high, verdant slope in the near background. Equally significant to Saucier, Aylmer jogs (or shifts) to the east once it crosses Sherbrooke to the university, "as if," the architect suggests, "the McGill campus had acted like a geological plate shifting the city grid."

Taking inspiration from these real and metaphoric geological con-

Project: *New Music Building at the Schulich School of Music, McGill University, Montreal*
Architect: *Saucier + Perrotte—Gilles Saucier, design principal*
Executive architect: *Menkès Shooner Dagenais Architectes—Anik Shooner, project architect*
Engineers: *Saia Deslauriers Kadanoff, Leconte Brisebois Blais (structural); Pellemon/BPR (m/e)*
Acoustics: *Artec*



The Cor-Ten-steel cladding at the base of the west facade not only adds to a lively play of textures and materials, but also makes reference to the earthiness of the courtyard beside it (left). The main entry elevation, along Sherbrooke (opposite), is mostly transparent, engaging the lobby and library with the street. Rather than imitate the older music building stylistically, Saucier sought a balance in compatible contrasts.

ditions, the architect imagined the building as exposed strata that had "eroded" from the once-larger mountain to create the plateau. As built, the 126,750-square-foot rectangular structure, rising eight stories above grade, has a strong horizontality along Aylmer Street, abstractly expressing the fictitious layers of "geological history." Here, Saucier introduces a deep concrete band, 20 feet up from the ground, intended to evoke a former ground plane, extending south from the mountain. Black and gray zinc cladding, with long, dynamically staggered strip windows, compose the elevation above the concrete band, with glass, brick, limestone, and concrete below it.

Because none of the tropes here are explicit or literal, some critics have interpreted this elevation as more musical than geological, with the reflections in the slivers of window playing lyrically against the precision—like a regular tempo bar—of the rectilinear, metal-clad bands.

The west facade has a very different beat, with a syncopated rhythm of matte and mirror-polished black-aluminum squares and rectangles, interspersed with flush windowpanes. The staccato of glinting surfaces animates this long elevation with flickering reflections of Strathcona Hall. Rather than jam together the contrasting new and old buildings, Saucier left breathing space between them for a long, narrow courtyard. At the base of this elevation, earthy Cor-Ten-steel cladding plays against the aluminum above it. Adding to the material palette, a [illegible] floor bridge, enclosed in green glass, links the two buildings.

The NMB's entry facade, along Sherbrooke, to the south, is [illegible] mostly in transparent glass, opening it visually to the street, while [illegible] double-height lobby that rises to a three-story, digitally wired music library (triple glazed), beneath two floors of offices, and finally, a top level of research labs, along with meeting and administrative rooms.

Projected toward Sherbrooke, beyond the discreetly setback Strathcona Hall, the NMB embraces and subtly expands the older building's already popular forecourt, centered on generous tiers of front steps. Built to its lot lines, the new structure holds the site like a cornerstone marking the entire campus's southeastern boundary, while benefiting from a slight bow in Sherbrooke to gain physical prominence in the city.

But beyond establishing the building's urban presence, many of the exterior moves come from interior functions. The school's energetic and visionary dean, Don McLean, who worked closely with the architects and acousticians to fine-tune and realize the design, put forward an ambitious program, in which a key element was the Centre for Interdisciplinary Research in Music Media and Technology (CIRMMT, pronounced "Kermit"). This center required state-of-the-art performing and recording spaces, as well as laboratories for investigating, for example, the perception and cognition of music and motion; digital sound modeling (synthesis and analysis) and acoustics; and virtual, 3D, multimodal immersive systems.

The centerpiece of CIRMMT is a five-story multimedia room (MMR)—a column-free, 60-by-80-by-60-foot-tall black box that can accommodate a symphony orchestra or choir, providing a cutting-edge sound stage for film scoring. The facility also includes a rehearsal hall for opera and voice. As recording studios with high-tech digital controls, both chambers demanded isolation from vibrations and sounds emanating from outside and inside the building (including its mechanical systems).

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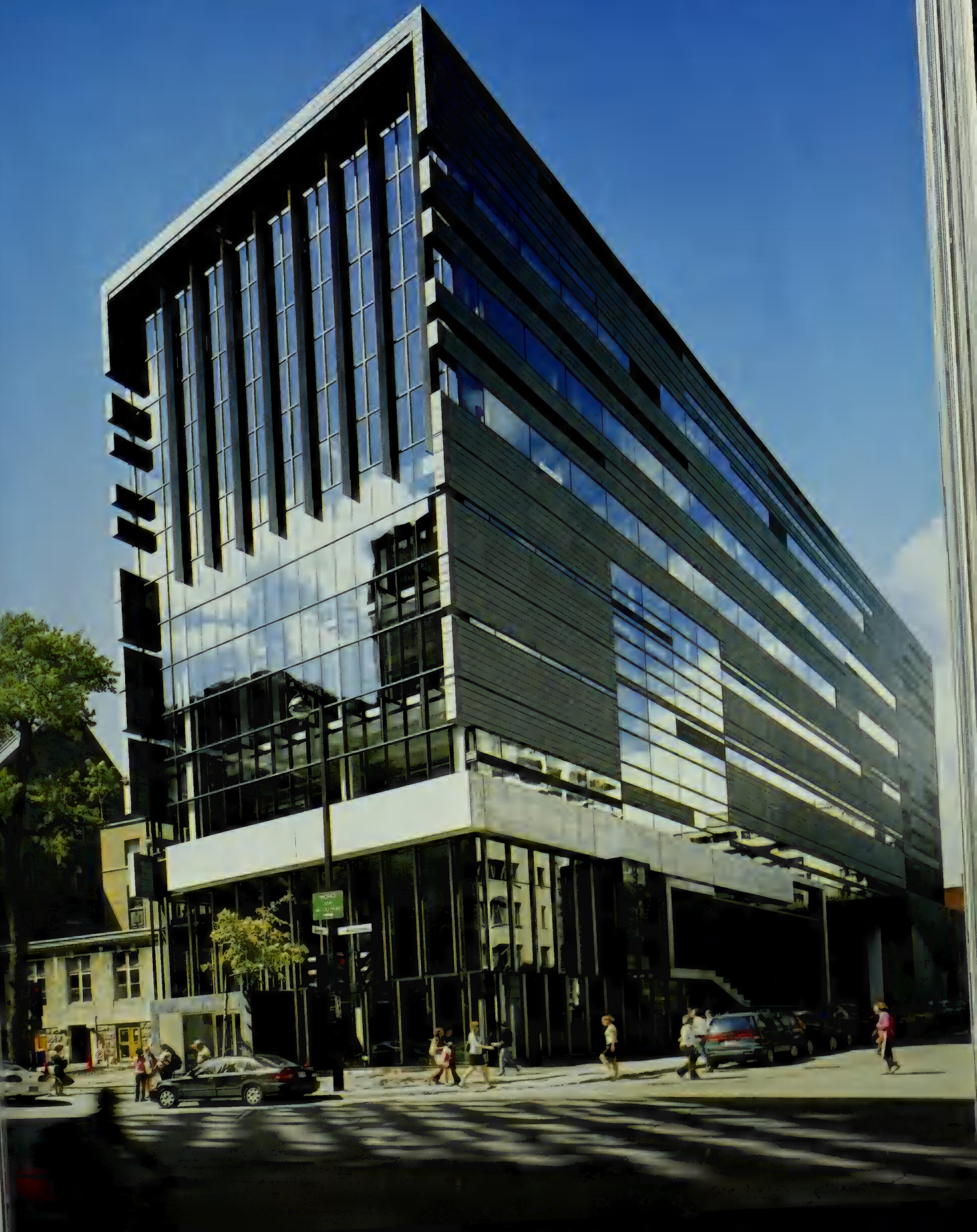
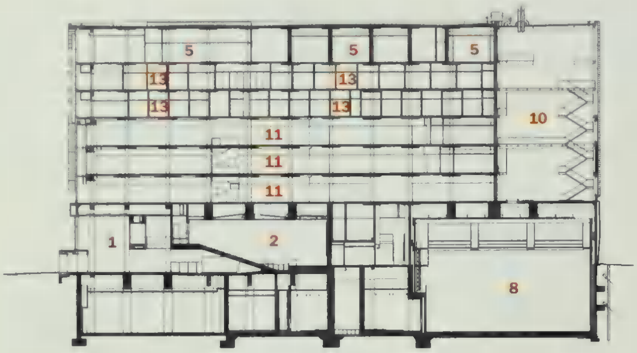
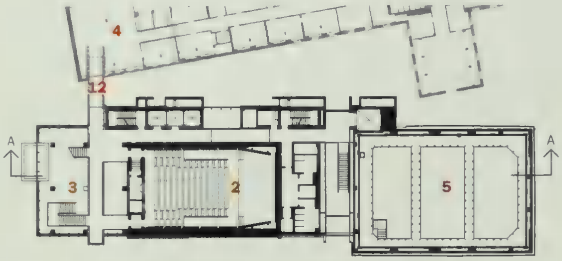
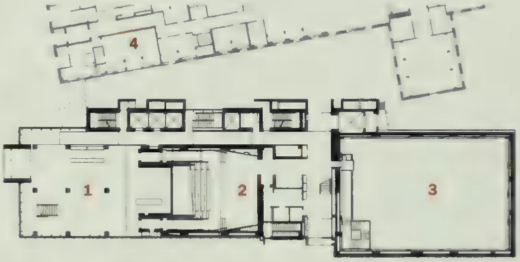




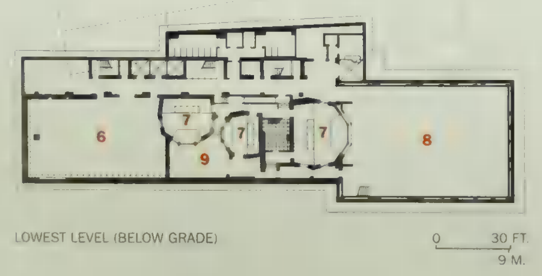
SECTION A-A



MEZZANINE LEVEL



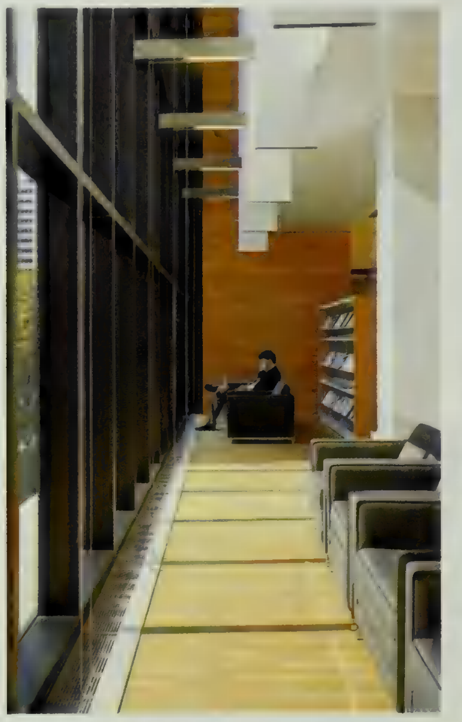
STREET LEVEL



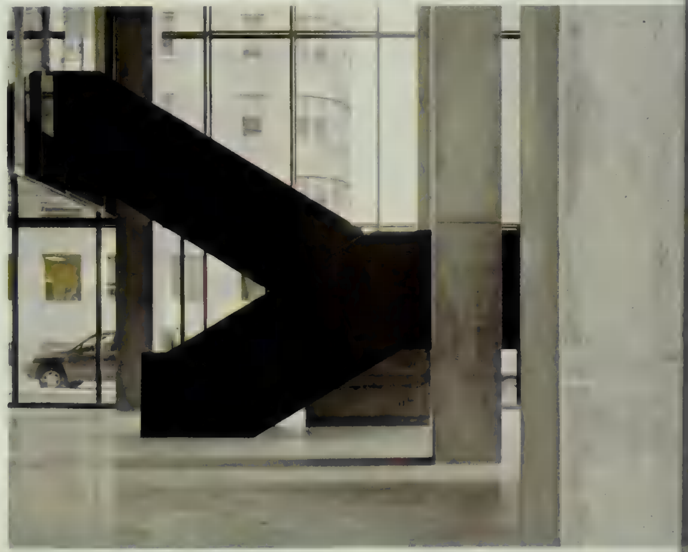
LOWEST LEVEL (BELOW GRADE)

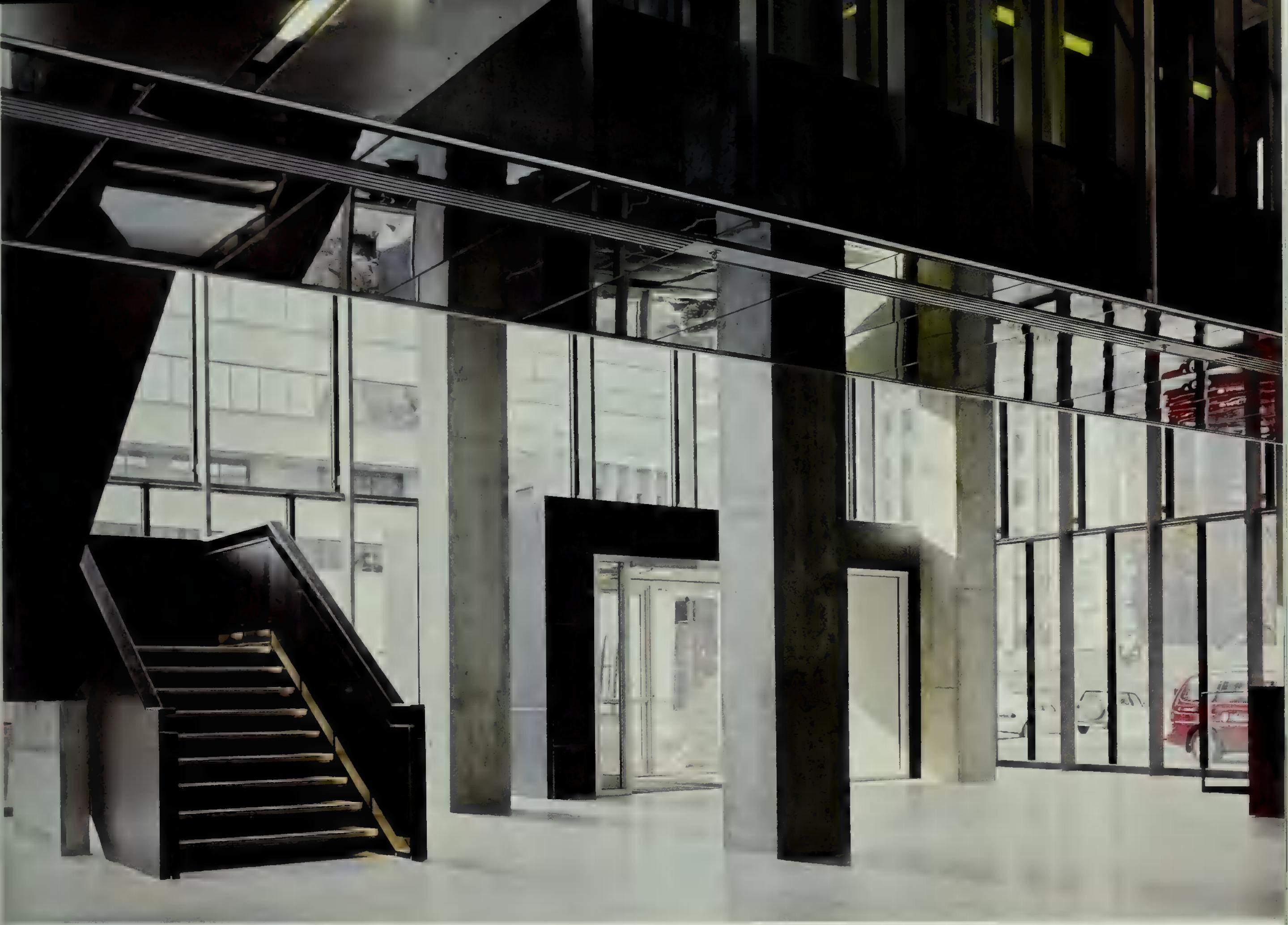
1. [illegible]
2. [illegible]
3. [illegible]
4. [illegible] Hall
5. [illegible] upper
6. *Opera rehearsal hall*
7. *Control booths*
8. *Multimedia room*
9. *Recording studio*
10. *Mechanical*
11. *Music Library*
12. *Bridge (to Strathcona Hall)*
13. *Office*

[illegible]



The library's layers create a facade behind a facade (left). A stair of folded, black steel (opposite and below) snakes through the lobby and then reemerges in the library above it. The 200-seat recital hall has ribbed, oak acoustic panels (bottom).





The lobby fully engages Sherbrooke Street, a major thoroughfare, just outside its door. This interior has simply a floor of polished concrete, raw-concrete columns, and a rough granite door surround.

To accomplish this acoustic feat in the thick of the city, the architects, working closely with acoustician Larry King, then of ARTEC, built the MMR as a concrete box within another (separated by neoprene pads for sound and vibration isolation) and buried the lowest two stories below grade, where both chambers, as well as small recording studios, are entered. The top of the nested volumes, rising two floors above the ground level at the north end of the site, along Aylmer, sets the datum line for that concrete "geological layer," wrapping all the way around the front of the building.

Rather than mount the mechanical systems on the roof in the conventional manner and run long ducts, increasing the potential for interior sound pollution, the architects perched a six-story-high box of mechanical stacks and catwalks above the MMR, carefully isolating the upper volume on concealed legs that descend to the ground. As a result, the mechanical feeds into each floor are short, direct—and quiet. Saucier also sequestered other potentially "noisy" elements, including fire stairs and elevators, behind the west elevation, separately articulating this functional vertical layer.

Expressions of the building's interior on its skin also extend to the 200-seat recital hall, entered off the lobby and its mezzanine. On the Aylmer facade, the edge of a folded plane of concrete reveals the rake of the auditorium floor, while bricks, laid vertically end-to-end above it, evoke the ribbed, oak acoustic panels inside the hall.

What is ultimately most remarkable about the building is how it renders a multitude of complicated factors perceptually simple. While the exterior, especially to the east, offers a high-energy dynamism and eclectic material palette, the overall geometric purity keeps the composition from ever feeling excessive. With reductivism in the details, disposition, and sheer number of different spaces, the interior conveys clarity and serenity. Because the design evolved through a protracted series of iterations, the architects had time to work out key spatial proportions (optimizing acoustics) and solve complex problems with pure, uncluttered, and at times seemingly straightforward results. "What you don't see are the spaces *between* rooms," says Saucier. "Much deeper than in ordinary buildings, they hold miles of cable. We even provided portals so that, say, CBC radio-broadcast trucks can hook up directly to our performance or recording spaces."

Free of distractions, the lobby, with floors of polished concrete, has a quiet elegance, animated by a sculptural stair of black steel that snakes up through it (a recurrent motif in Saucier + Perrotte's work), by the green-glass bridge that crosses the mezzanine, heading toward Strathcona Hall, and by the movement of people through the space or along the highly visible streetscape beyond it. "This was like doing an art school," says Saucier. "You want to inspire people, but if you put in too much design, you rob the students of their chance to express themselves." ■

For sources, see page 124.

ONLINE: To rate this project, go to **architecturalrecord.com**/projects/.
Submit your project to **construction.com**/community/gallerylist.aspx.

NELSON-ATKINS MUSEUM OF ART

Kansas City

(page 92)

Sources

Glass curtain wall: *Bendheim Wall Systems*

Concrete: *JE Dunn Construction*

Roofing: *Tamko Roofing Products*

Glazing: *Cricursa; Saint Gobain; OkaLux*

Doors: *Blumcraft of Pittsburgh, Crane Revolving Door Company, Dawson Doors (entrances); DH Pace (custom sliding and pivoting gallery doors); Horton Automatics (sliding);*

Hardware: *Schlage (locksets); Von Duprin (exit devices); Direct Process Metal Fab (custom pulls)*

Acoustical ceilings: *Fellert Ecoustic USA*

Cabinetwork: *Dunnke Millwork Company*

Custom wood ceilings: *Architectural Components Group*

Polished plaster: *Armourcoat*

Floor tile: *Master Terrazzo Technologies (epoxy terrazzo); Granicor (stone); Acme Floor Company (end-grain wood block)*

Custom benches: *Noel Designs*

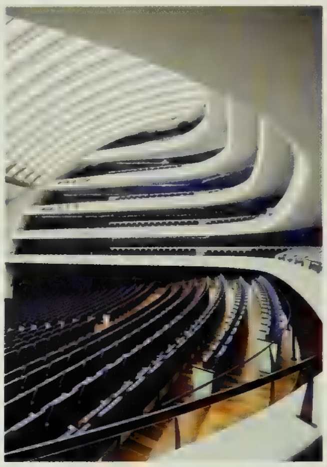
Interior ambient lighting: *Edison Price Lighting; Nulux; C.W. Cole and Company*

Elevators: *ThyssenKrupp*

Plumbing: *Duravit; Toto*

Custom floor grilles and metal work: *A. Zahner Company*

Custom bar and cable railings: *[illegible] Corporation*



REINA SOFÍA PALACE OF THE ARTS

Valencia, Spain

(page 102)

Sources

Structural system: *Montcor; Emesa; Treycal*

Glass curtain wall: *Fasin Glass*

Concrete: *Hormicemex*

Roofing: *Gevasa, Mapsa (elastomeric); Talleres Centrales de Acciona (metal); Acieroid (aluminum siding)*

Windows: *Blasco Carpinteria y Madera (wood); Treycal (steel); Fasin Glass (aluminum)*

Glazing: *Berca Cristalieria*

Doors: *Fichet Carpentry (metal, wood); Ramón Gabriel (stainless steel)*

Plaster paneling: *Panegen*

Broken ceramic wall tile: *Renau Tiling*

Flooring: *Compari (stone); Tecnipark (wood)*

Lighting: *Electrocimbra*

Conveyance: *Kone*

Plumbing: *Fonsa Installations*

Climate control: *ECI*

Building security: *Honeywell*

Landscaping: *Dalmau*

Fire-safety system: *Unisersa*

OLYMPIC SCULPTURE PARK

Seattle, Washington

(page 110)

Sources

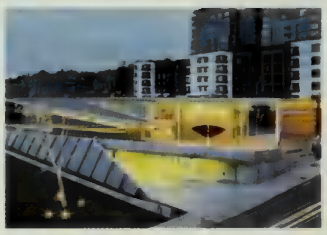
Mechanically stabilized earth: *SierraScape*

Corrugated-stainless-steel panels: *McKinstry*

Aluminum curtain wall: *Kawneer*

Mirror frit glass: *Eckelt Glas GmbH*

Precast-concrete panels: *Con-Force*



Custom resin tabletops and counters: *ATTA*

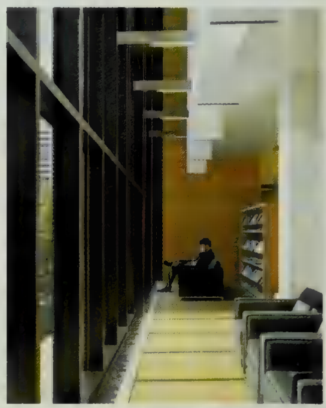
Custom metal furniture fabrication: *Company K*

Welded-wire-mesh handrails and guardrail: *Ametco Manufacturing Corporation*

Custom bollards: *D'ac Lighting*

Exhibition and architectural track lighting: *Litelab Corporation*

Lighting controls: *Lutron*



NEW MUSIC BUILDING, MCGILL UNIVERSITY

Montreal

(page 118)

Sources

Glass curtain wall: *Gamma*

Zinc cladding: *V.M. Zinc*

Prefabricated concrete panels: *Tremca*

Roofing: *Bakor*

Glazing: *PPG*

Doors: *Metaux Tremblay*

Hardware: *SOSS*

Cabinets and custom woodwork: *Polybois*

Aluminum panel paint: *PPG Duranar*

Painted concrete: *Chemor*

Insulation: *Roxul*

Toilet accessories: *Bobrick*

Interior ambient lighting: *Peerless*

For more information on these projects, go to Projects at **architecturalrecord.com**.

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Kasavan Architects

cis Drake High School   San Anselmo, CA
Lewis McKinley, Architecture
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Making the Grade

A sampling of recent school projects looks beyond satisfying the demand for classrooms and demonstrates an uncommon responsiveness to context and students' needs.

By Joann Gonchar, AIA

There is no question that the design of school facilities represents a huge and increasingly important opportunity for architects. Just one measure of the size of this market is the dollar value of construction starts, which rose from $9.8 billion in 1990 to $29.3 billion in 2005, a 199 percent gain, according to a study by McGraw-Hill Construction Analytics released in January.

Future investment naturally depends on financing, but also on enrollment. According to statistics cited in the McGraw-Hill study, the number of students in grades K-12 jumped by 8.5 million between 1990 and 2003, reaching 55 million—an almost 18 percent increase. Although growth is expected to slow through 2015, an additional 260,000 students will still be entering U.S. schools annually. If these projections hold, the country will need more than 10,000 new classrooms each year.

The volume and speed required to keep pace with this tremendous demand may be partly to blame for the blandness that has characterized so many school buildings. The focus on creating new school capacity quickly, along with tight budgets and district design guidelines that sometimes specify everything from classroom configuration to the color of paint on the walls, seems to have left little room for innovation.

However, if the many worthwhile projects reviewed for this Building Types Study are any indication, schools are evolving. Just a small sample—only three schools—of the submitted projects appears on the following pages. They represent inventive solutions to very different design problems. But all demonstrate an uncommon sensitivity to the needs of their unique constituencies and their buildings' surroundings.

On a challenging site in Los Angeles, Daly Genik has created an insular, but not isolated, charter high school dedicated to educating immigrant and minority children. In New York City, Platt Byard Dovell White's Reece School provides a supportive setting for students with emotional disorders and learning disabilities, while responding to the dense Upper East Side environs. And for the Rosa Parks Elementary School, in suburban Redmond, Washington, Mahlum Architects has made the most of the site's natural attributes.

Our Web site presents many more projects, including Kieran Timberlake Associates' environmentally ambitious expansion of Washington, D.C.–based Sidwell Friends Middle School, built around a constructed wetland (see the technology story on page 149). Sidwell, along with the other schools examined in print and on the Web, demonstrates that architects are creating buildings that do more than merely accommodate the influx of new students. ■

CAMINO NUEVO HIGH SCHOOL

Los Angeles, California

Daly Genik Architects' inventive solution for a difficult urban site creates a school that both responds to, and is sheltered from, the frenetic activity of the neighborhood.

ROSA PARKS ELEMENTARY SCHOOL

Redmond, Washington

Taking its cues from the natural environment and the community, Mahlum Architects worked with a vocabulary of multistory spaces, sheltering overhangs, and grassy courtyards to tie the building to its surroundings.

REECE SCHOOL

New York, New York

With attention to color, materials, and scale, Platt Byard Dovell White Architects has designed an inviting school building that engages students' minds and senses.

ONLINE: View additional K-12 schools, including the Sidwell Friends Middle School, at ***architecturalrecord.com****/bts/*. Submit your K-12 project to ***construction.com****/community/gallerylist.aspx*.

One: CAMINO NUEVO HIGH SCHOOL

Los Angeles, California

Daly Genik transforms an awkward and almost unusable site in a gritty section of the city into a dynamic environment for learning.

By Sam Lubell

Architect: *Daly Genik Architects—Kevin Daly, AIA, principal in charge; Irena Bedenikovic, Stephen Bohne, Tomaso Bradshaw, Patrick McEneany, Jared Ward, Aaron Whelton, project team*
Client: *Pueblo Nuevo Development*
Consultants: *Tsuchiyama, Kaino, Sun & Carter (mechanical and plumbing); Konsortum1 (electrical); Pfeiler and Associates (civil); John Labib+Associates (structural)*
General contractor: *Turner Construction/SPD*

Size: *29,945 square feet*
Cost: *$13 million*
Completion date: *November 2006*

Sources
Windows: *Arcadia*
Locksets: *Corbin-Russwin*
Resilient flooring: *Armstrong*
Plastic laminate: *Wilsonart*
Cabinet work: *Pacific Woodworks*
Paints: *Frazee*
Plumbing fixtures: *American Standard*

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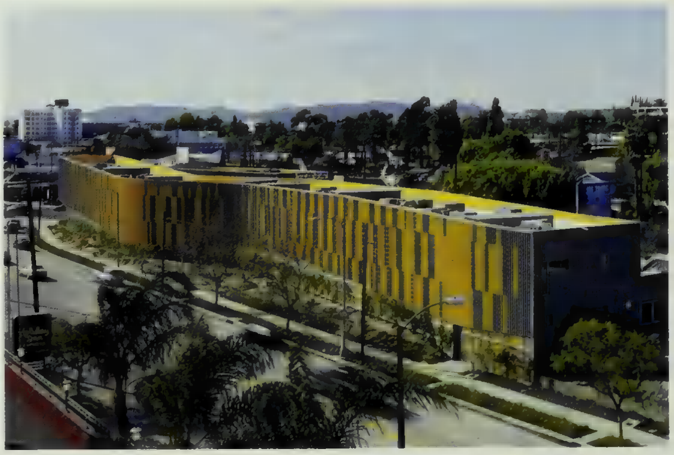


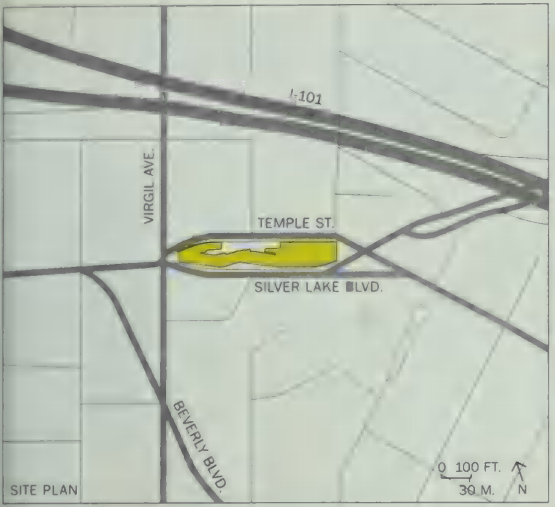
Where else but in Los Angeles would you expect to find a parcel of land that is essentially a large traffic island used as a site for a school? Exactly such a site was selected by the Camino Nuevo Charter Academy for its 500-student high school, opened last fall in Historic Filipinotown. The complex sits on a long, narrow strip of land in the shadow of U.S. 101 and bounded by four busy streets. Given these frenetic surroundings, and the odd shape of the site, the architects' challenge was "to find recoverable pieces of urban space" without isolating the school from the neighborhood, says Kevin Daly, AIA, partner of Santa Monica–based Daly Genik Architects.

Sam Lubell, ARCHITECTURAL RECORD's former news editor, is the California editor of The Architect's Newspaper.

The academy was launched in 2000 by Pueblo Nuevo Development, a nonprofit community development corporation. It primarily serves children who live in the MacArthur Park neighborhood, one of the poorest in the city. Daly's firm had already designed the academy's elementary and middle schools [RECORD, February 2001, page 134, and March 2003, page 144], and is now working on a preschool.

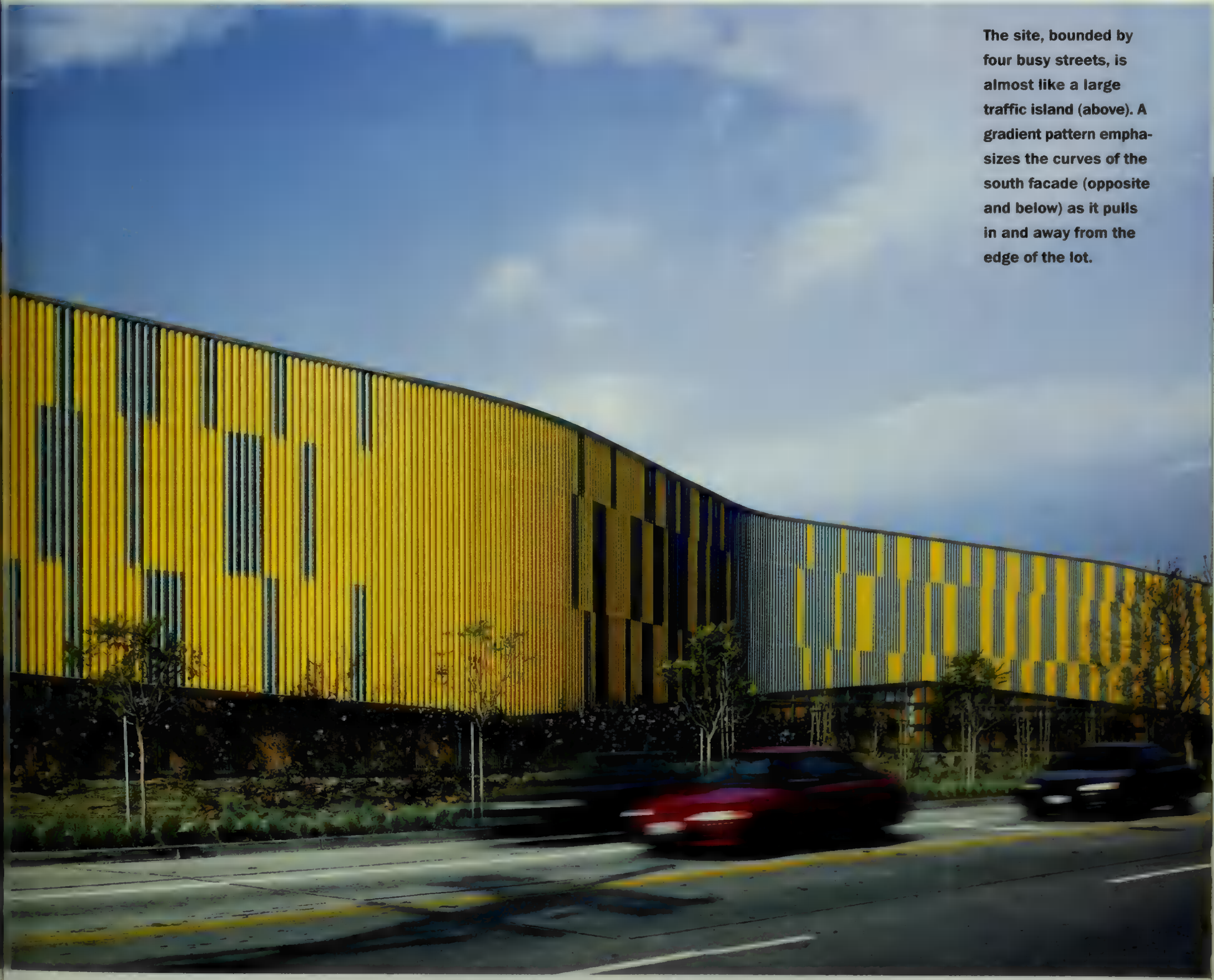
Program

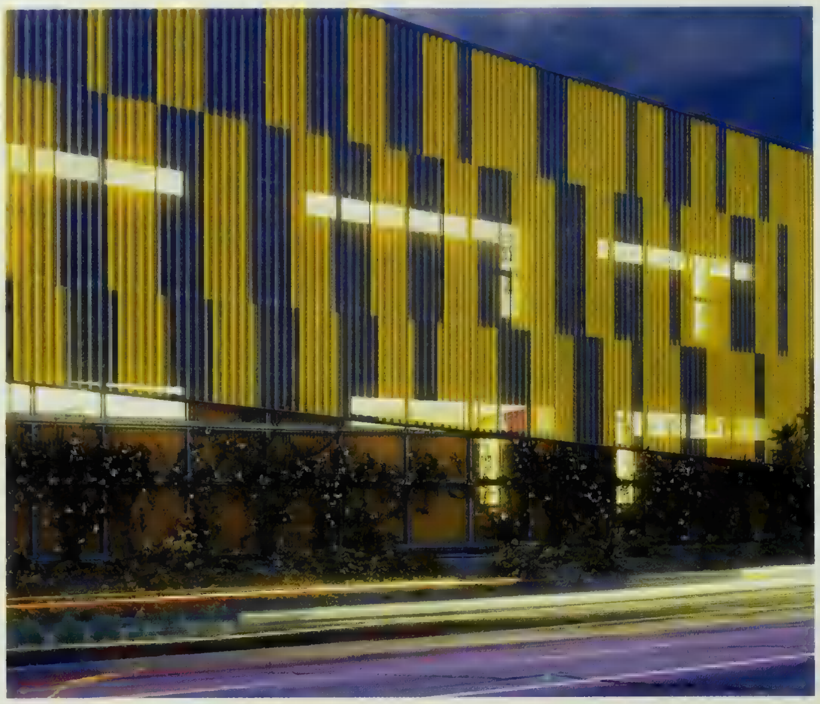
For the high school, the architects were required to fit a 30,000-square-foot building that included 18 classrooms, a media center, and administration areas onto just over an acre of land. In addition, they needed to provide space for outdoor activities and parking, all while staying within a tight budget of less than $300 per square foot.



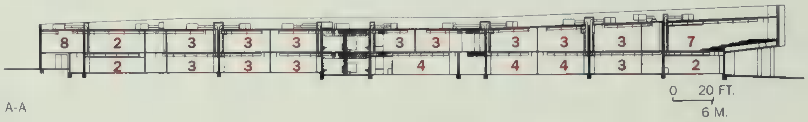
SITE PLAN

The site, bounded by four busy streets, is almost like a large traffic island (above). A gradient pattern emphasizes the curves of the south facade (opposite and below) as it pulls in and away from the edge of the lot.

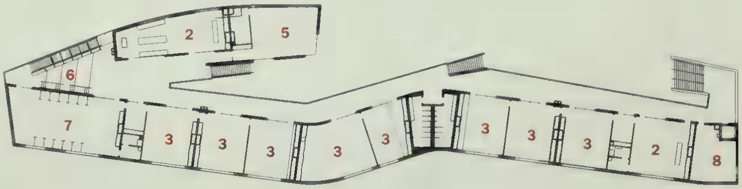




The perforated and corrugated panels screen, but do not obstruct, views of the neighborhood (above). The bottom edge of these panels is slightly wavy, mimicking their curvature in plan, and pulling away from the ground plane to provide space for metal trellises and climbing plants.

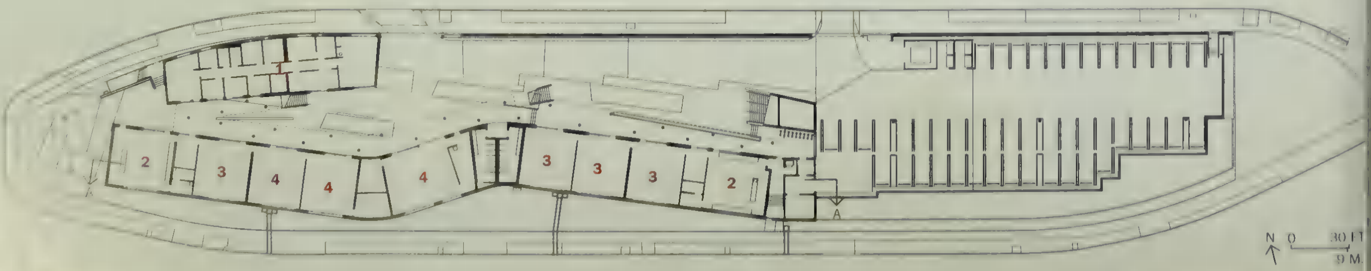


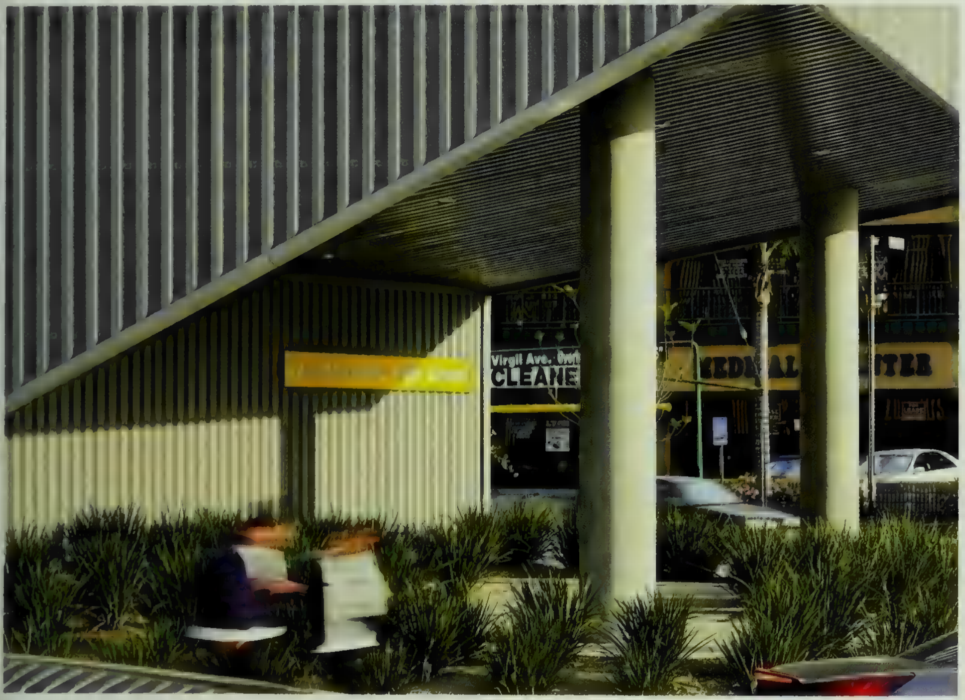
SECTION A-A

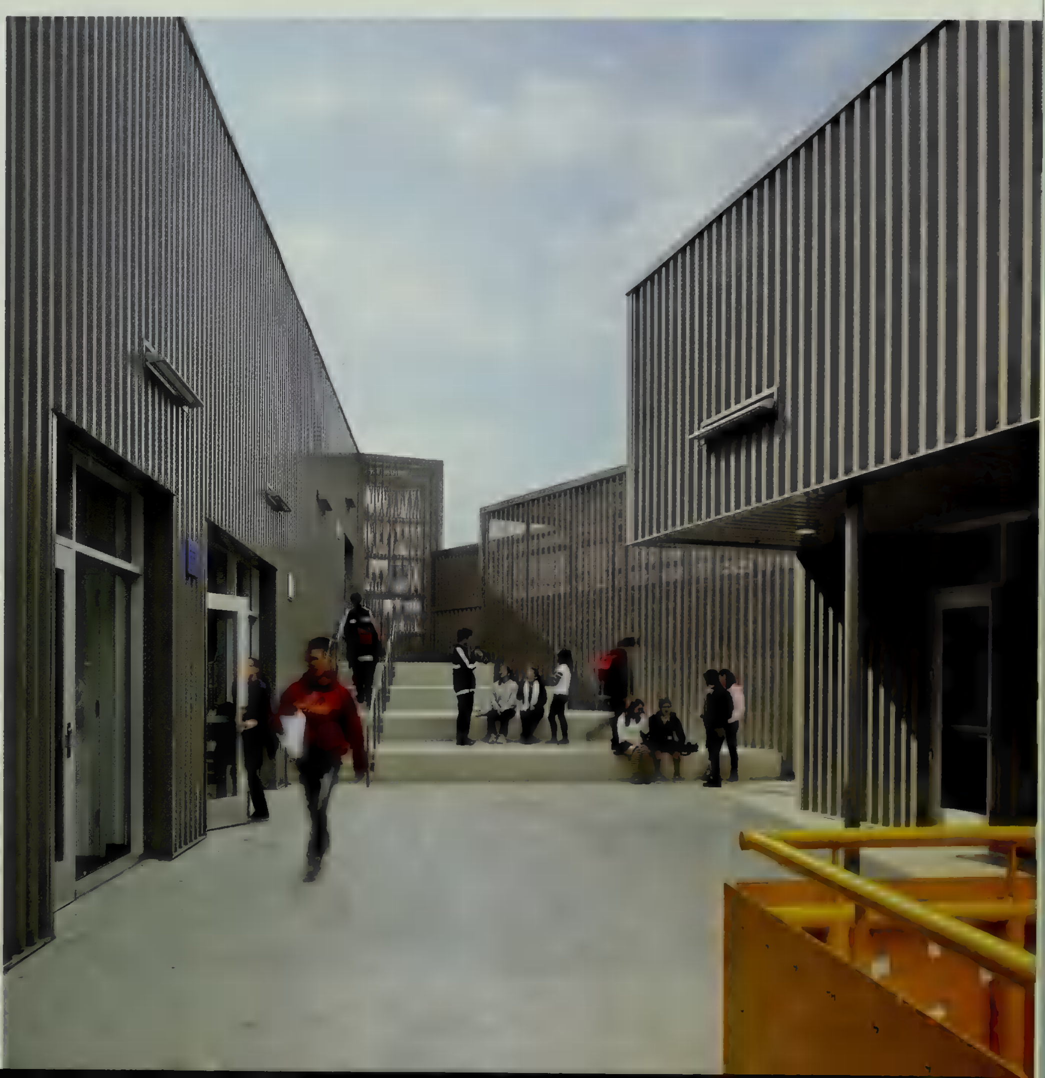


SECOND FLOOR

1. *Administration*
2. *Science lab*
3. *General classroom*
4. *Arts classroom*
5. *Media center*
6. *Outdoor amphitheater*
7. *Auditorium*
8. *Storage*







On the second level of the courtyard, an outdoor amphitheater (below) provides space for socializing, performances, or class meetings. Directly below the amphitheater, at street level, is a small sheltered area (left) where students can wait for rides home.

Solution

The firm addressed these demands by designing a pair of two-story structures. Along the site's southern edge, a long building with a snakelike plan houses classrooms. To the north side is a smaller building devoted primarily to administrative functions.

Continuous corrugated-metal panels clad the buildings' concrete-block bearing walls. On the primary street elevations, the panels cover the windows to limit penetration of street sounds and provide sun control, but are perforated to allow views out. The facades curve, breaking up the buildings' bulk and mimicking the automobile movement around the school.

These facades are painted yellow and gray in a pattern that uses more yellow where the walls push outward and less where they are concave, to emphasize their curves. In some places, the south facade pulls away from the lot line, providing spaces for landscaping. To the west, the second floor projects out on columns, creating a sheltered area for students to wait for rides home.

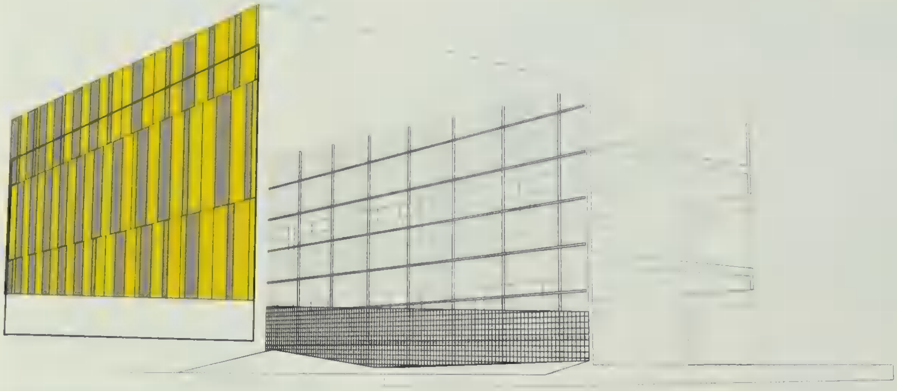
Classrooms open directly onto a courtyard between the two buildings, making this space the school's hub. In this zigzagging area filled with tables and plants, students file in and out of classes, eat lunch, play impromptu soccer games, and attend schoolwide meetings. On the second floor, overhanging balconies provide circulation and shade. The courtyard opens to the north—where traffic is the least busy—allowing views toward the neighborhood.

In the classrooms, open-web joists and metal deck supporting the slab above are left exposed. Small windows on the south let in dappled light through the facade's perforations. North-facing windows along the courtyard are larger and free of shading devices, making the rooms feel open and bright, and helping maintain a connection to the rest of the school.

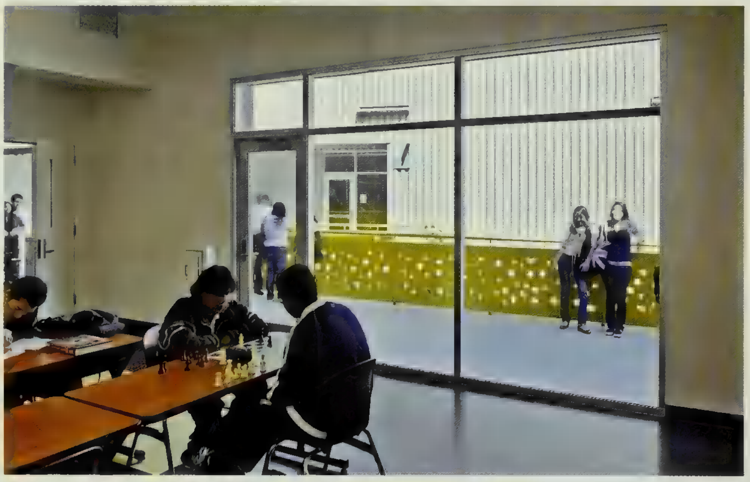
Commentary

The architect and the design-savvy client have together approached the school as a work in progress. Both were open to changes throughout the design process, and even after completion. For example, a two-lane drop-off area just north of the courtyard has become a recreation area. The firm is investigating ways to activate this space and provide shading. The school now uses city parks and other gym facilities for more organized sports, but hopes to acquire another 1-acre site across the street for such activities.

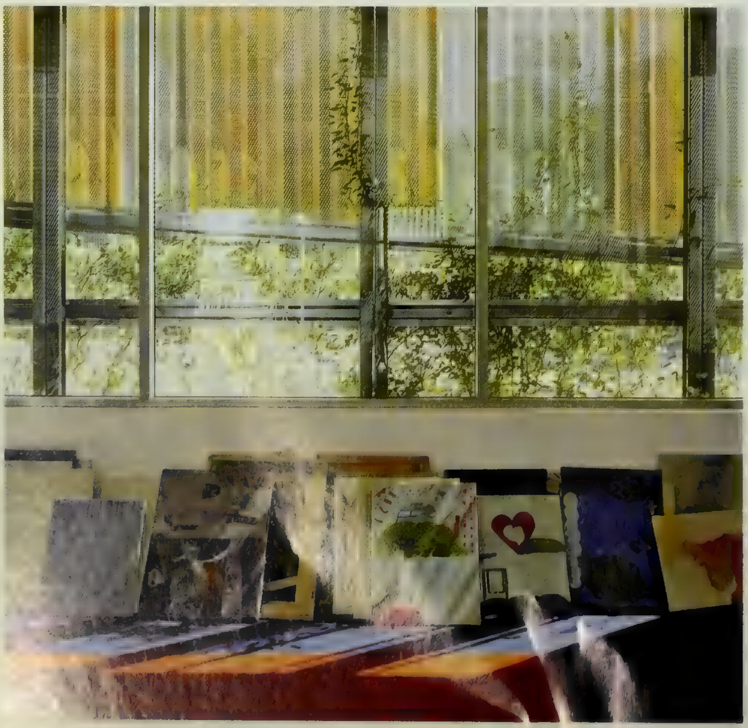
Considering the strange configuration of the site, the architect's solution is surprisingly simple and effective. Although the school, especially the long south facade, can seem a bit intimidating from the street, it is dynamic and a good match for its gritty surroundings. This facade system, along with the school's layout, provides protection from the sun and helps limit penetration of street noise, without shutting the school off from the neighborhood. The courtyard, in particular, is a notably important and successful aspect of the scheme. "It helps us all stay connected and helps us collaborate," says Steve Seaford, the school's principal. "We've developed our sense of community here." ■

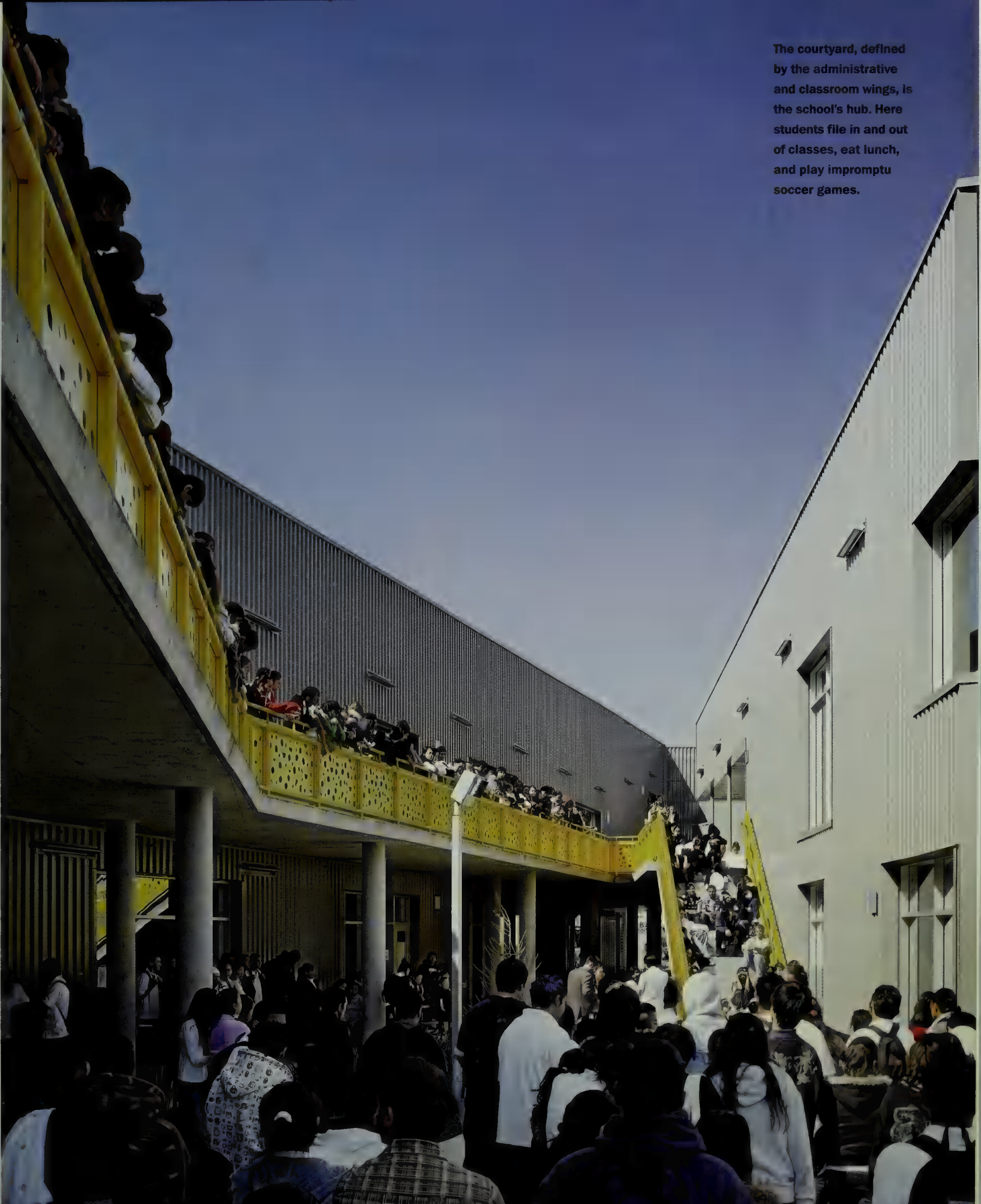


SECTION / ELEVATION



North-facing classroom windows (left) are large and open, helping the rooms maintain a connection to the school's courtyard. Perforated and corrugated metal panels (below and drawing, above) screen smaller windows facing the street to provide sun control and help limit the penetration of traffic noise.





The courtyard, defined by the administrative and classroom wings, is the school's hub. Here students file in and out of classes, eat lunch, and play impromptu soccer games.

Two: ROSA PARKS ELEMENTARY SCHOOL

Redmond, Washington

Mahlum Architects designs a building that is well-suited to its natural setting and in sync with the desires of an emerging community.

By Joann Gonchar, AIA

Architect: *Mahlum Architects—Gerald Reifert, AIA, principal in charge; Anne Schopf, FAIA, design principal; Mitchell Kent, AIA, project manager; David Mount, AIA, project architect*
Client: *Lake Washington School District*
Consultants: *Stantec Engineering (mechanical); Coffman Engineering (electrical); Couglin Porter Lundeen (civil and structural); Weisman Design Group (landscape); The Greenbusch Group (acoustic)*
General contractor: *SpeeWest Construction*

Size: *66,402 square feet*
Cost: *$13.7 million*
Completion date: *August 2006*

Sources
Curtain wall: *Kawneer*
Cementitious panels: *James Hardie*
Concrete surfacing: *RetroPlate*
Resilient flooring: *Johnsonite*
Cabinetwork: *Westmark Cabinets*

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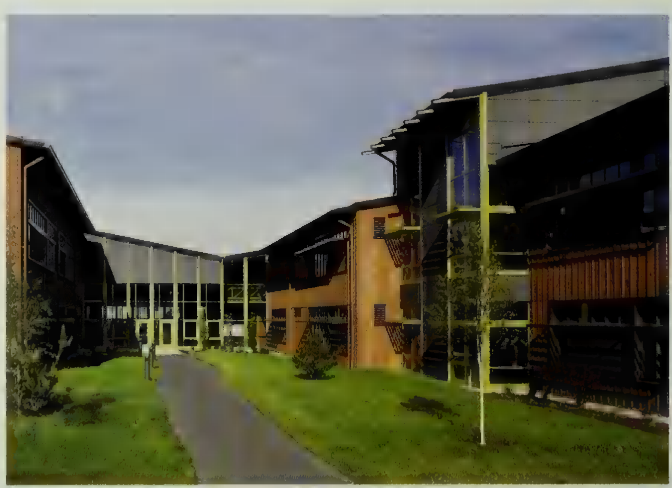
In late 2003, when Mahlum Architects began designing the Rosa Parks Elementary School in Redmond, Washington, families were just starting to move into the 1,000-acre mixed-use development it would serve, and the faculty had yet to be hired.

Program

With the school's stakeholders still largely undefined, the Seattle-based architects would have to rely on past experience with their client, Lake Washington School District, to refine the program. However, some of the development's early homeowners expressed a desire for a building that reflected a "national parks" theme. The developer had used the term in its promotional material to describe the community's ambience and convey the importance of its natural amenities, including nature trails, wetlands, and parks.

Although the architects worried about how they would satisfy this request and avoid creating a historically referential building, they took the residents' wishes seriously. They decided to work with a Modernist vernacular to create a school tied to its surroundings. By employing multistory spaces, sheltering overhangs, and a palette of earthy browns and grays accented with vibrant green, they sought to imbue the building with color and character.

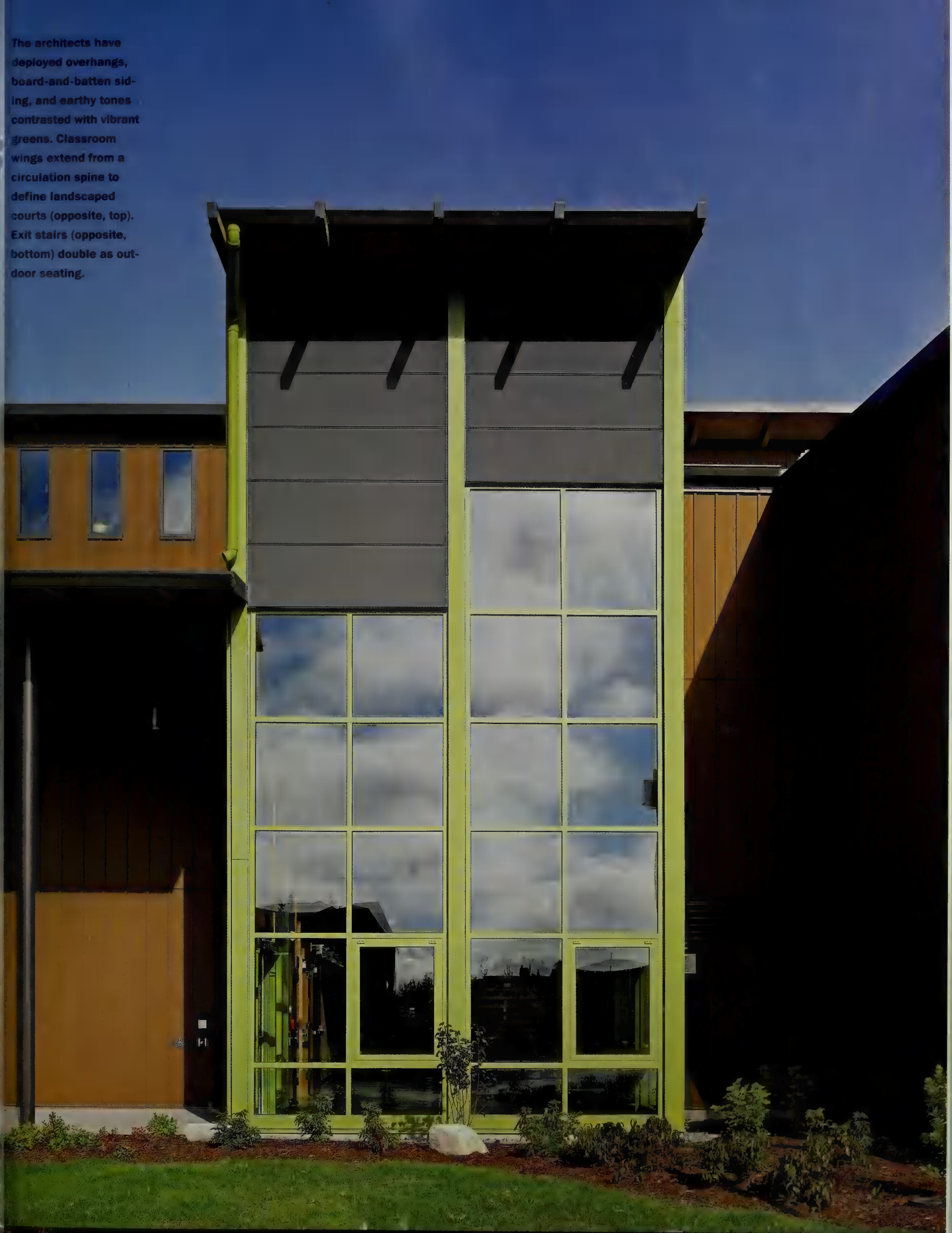


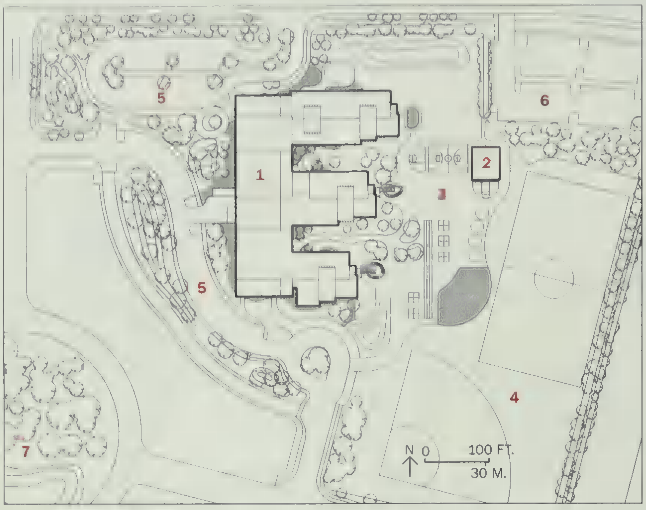
The program required that the 550-student school would be divided into more intimate "learning communities"—classrooms clustered around a shared space intended for team teaching, group learning, or individual study. The model reflects Lake Washington's pedagogical and facilities-use philosophy based on flexible spaces that can accommodate multiple teaching styles.

Solution

The resulting 66,000-square-foot school, opened in fall 2006, is composed of a series of shed-roofed structures clad with cement-fiber-board panels. Along its western edge are administrative offices and shared facilities, such as the library, the school commons, and the gymnasium. On the east side of the building, one- and two-story wings contain the learning communities. They define courtyards planted with native grasses and wild flowers.

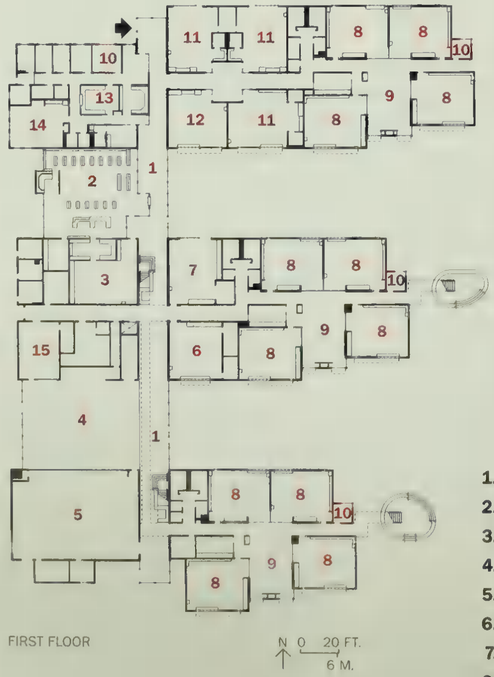
The architects have deployed overhangs, board-and-batten siding, and earthy tones contrasted with vibrant greens. Classroom wings extend from a circulation spine to define landscaped courts (opposite, top). Exit stairs (opposite, bottom) double as outdoor seating.





1. *Elementary school*
2. *Covered play area*
3. *Outdoor play area*
4. *Playing fields*
5. *Parking/drop-off*
6. *Park and ride*
7. *Community park*

Classrooms have generous south- or north-facing glazing. Carpeting helps provide acoustic control.



FIRST FLOOR

1. *Gallery*
2. *Library*
3. *Technology*
4. *Commons*
5. *Gymnasium*
6. *Music*
7. *Art/science*
8. *Classroom*
9. *Activity area*
10. *Conference*
11. *Kindergarten*
12. *Resource room*
13. *Administration*
14. *Staff room*
15. *Kitchen*

The gallery facade is transparent and permeable, with an aluminum storefront system that allows views to the east of playing fields and a wooded area beyond. Students and staff can also see out to the west, through the commons and the library. The gallery volume is open and bright, with an exposed roof structure of construction-grade plywood and open-web joists. Instead of an enclosed second-floor hallway, a bridge connects the upper-level learning communities and seems to float above the gallery's polished concrete floor.

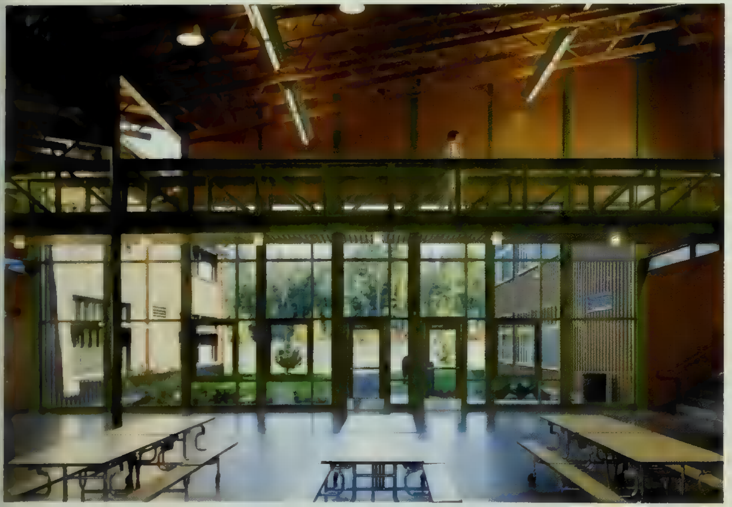
From the bridge, one example of the architects' inventive handling of circulation spaces is evident. From this vantage point, children can see outside and also view the activity in the school's commons. Similarly, the exterior stairs at the end of each wing are more than a means of fulfilling exiting requirements. The open-riser steel stairs land on a sculptural concrete pad that doubles as seating, creating a place to "see and be seen," says Anne Schopf, FAIA, Mahlum design principal.

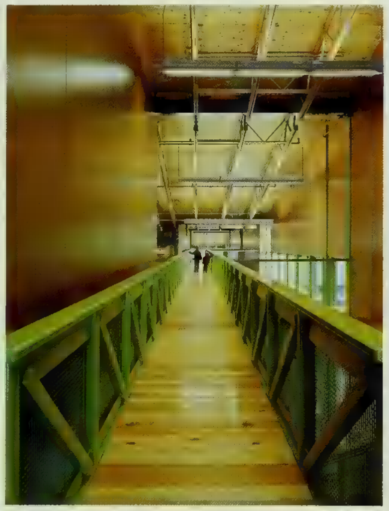
Within the instruction wings, the learning communities are made up of four classrooms grouped around a shared activity area. Glazed sliding doors provide a physical and visual connection between the two types of spaces, allowing teachers to supervise both simultaneously. Carpet in the classrooms and rubber tile in the shared areas provide both acoustic control and surfaces friendly to activities like storytelling. These rooms strive to make the most of daylight with generous north-facing glazing or south-facing glazing and light-shelves.

Commentary

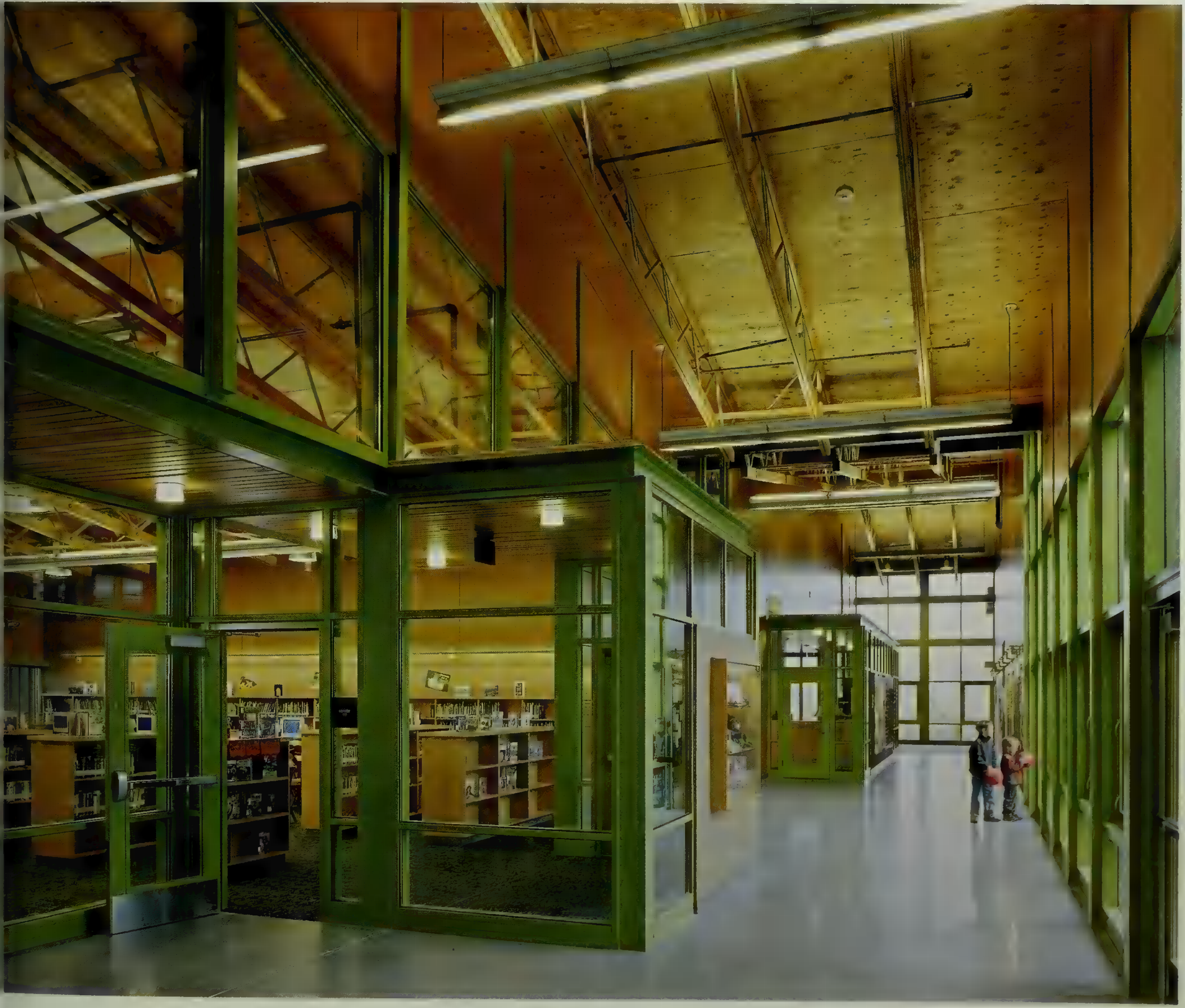
The daylighting is one of the building's few disappointments. Although the classroom fixtures are tied to a daylight dimming system, teachers regularly override it. During late-morning classes on a sunny mid-May day, window shades were drawn and overhead lights on in most classrooms. However, this problem is likely the result of inadequate teacher orientation, rather than a design deficiency, says Forrest Miller, the district's director of support services.

Despite this operational glitch, the project's achievements are considerable. The architects have deftly handled space and judiciously exposed structural elements to create an environment that is clean and contemporary without being cold. The designers have also skillfully satisfied the community's desires without resorting to more predictable historically allusive materials, such as stone veneer or heavy timber. The building is firmly rooted to its surroundings and promotes both teaching and learning. ■





The exposed roof structure of the two-story gallery (this page) helps maintain its open and bright character. Polished concrete floors reflect light coming in through storefront windows. Instead of an enclosed hallway, a bridge connects the upper-level rooms. From this vantage point, students can view activity in the school commons.



Three: THE REECE SCHOOL

New York City

Platt Byard Dovell White creates an inviting building finely tuned to the needs of its occupants and neighbors.

By David Sokol

Architect: *Platt Byard Dovell White Architects—Ray H. Dovell, AIA, administrative partner; Elissa C. Icso, AIA, project manager; Charles Platt, FAIA, Matthew Mueller, AIA, Steven Dodds, Naomi Touger, project team*
Client: *The Reece School*
Consultants: *Anastos Engineering Associates (structural); Simon Rodkin (m/e/p); Cosentini Associates (lighting); Shen Milson Wilke (acoustical); GTA Engineering (geotechnical)*
General contractor: *The Stegla Group*

Size: *21,040 square feet*
Cost: *$8.4 million*
Completion date: *June 2006*

Sources
Masonry: *Tri-State Brick*
Curtain wall: *Vistawall*
Glazing: *Oldcastle*
Paints: *Benjamin Moore*
Gymnasium floor: *Gerflor*
Carpet tiles: *Interface*
Casework and cabinetry: *LSI Corporation of America*
Classroom furniture: *KI Educational*

this project and access
ces at
ord.com/bts/.

Now almost 60 years old, the Reece School was one of the first in New York City to educate children with emotional disorders, learning disabilities, and speech or occupational impairments. It is still a leader in this field. Director Thomas Colasuonno sums up Reece's approach: "However they got here, the pathology is the same, and we deal with it behaviorally, psychopharmacologically, psychodynamically—we deal with it humanely." Since last July, when the city-contracted private elementary school moved into a new 23,000-square-foot building by Platt Byard Dovell White Architects (PBDW), faculty and staff have also counted design among their educational tools.

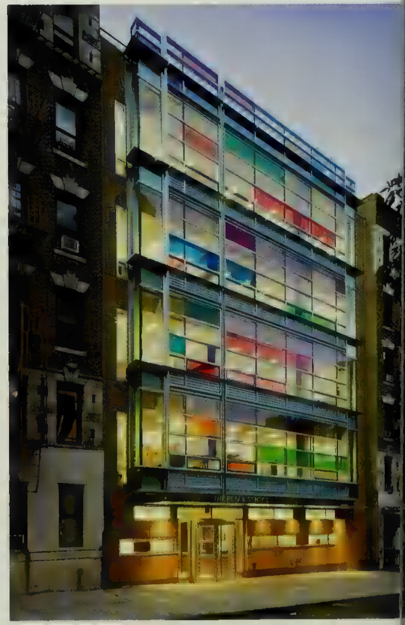
Program

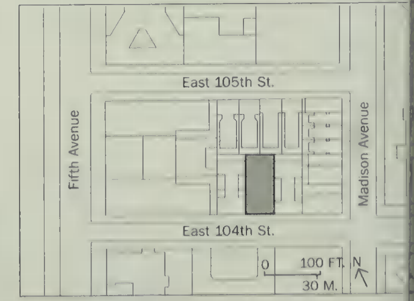
The school has steadily grown since 1948, when founder Ellen Reece began teaching in her Upper East Side town house. In 1995, the school expanded to an adjacent brownstone. But only five years later, with about 75 students, the school had outgrown its 6,000-square-foot space. Renovation and expansion of the adjoining structures was not a viable option, so the city and Reece teamed up to increase enrollment to 90 and identify a nearby site suitable for a new building.

Although the size of the old brownstones was in many ways inadequate, their intimate scale reflected the school's values, says Ray Dovell, AIA, PBDW principal. And in fact, designers learned that Reece students are most comfortable in smaller environments. Accordingly, they made the new classrooms a cozy 300 square feet in order to accommodate six to eight students and two teachers.

In addition to instructional spaces, the new Reece includes what Dovell calls "a world of education," with counselors' and therapists' offices, faculty support spaces, and the school's first lunch room and gym.

David Sokol is a New York–based freelance writer and regular contributor to ARCHITECTURAL RECORD.



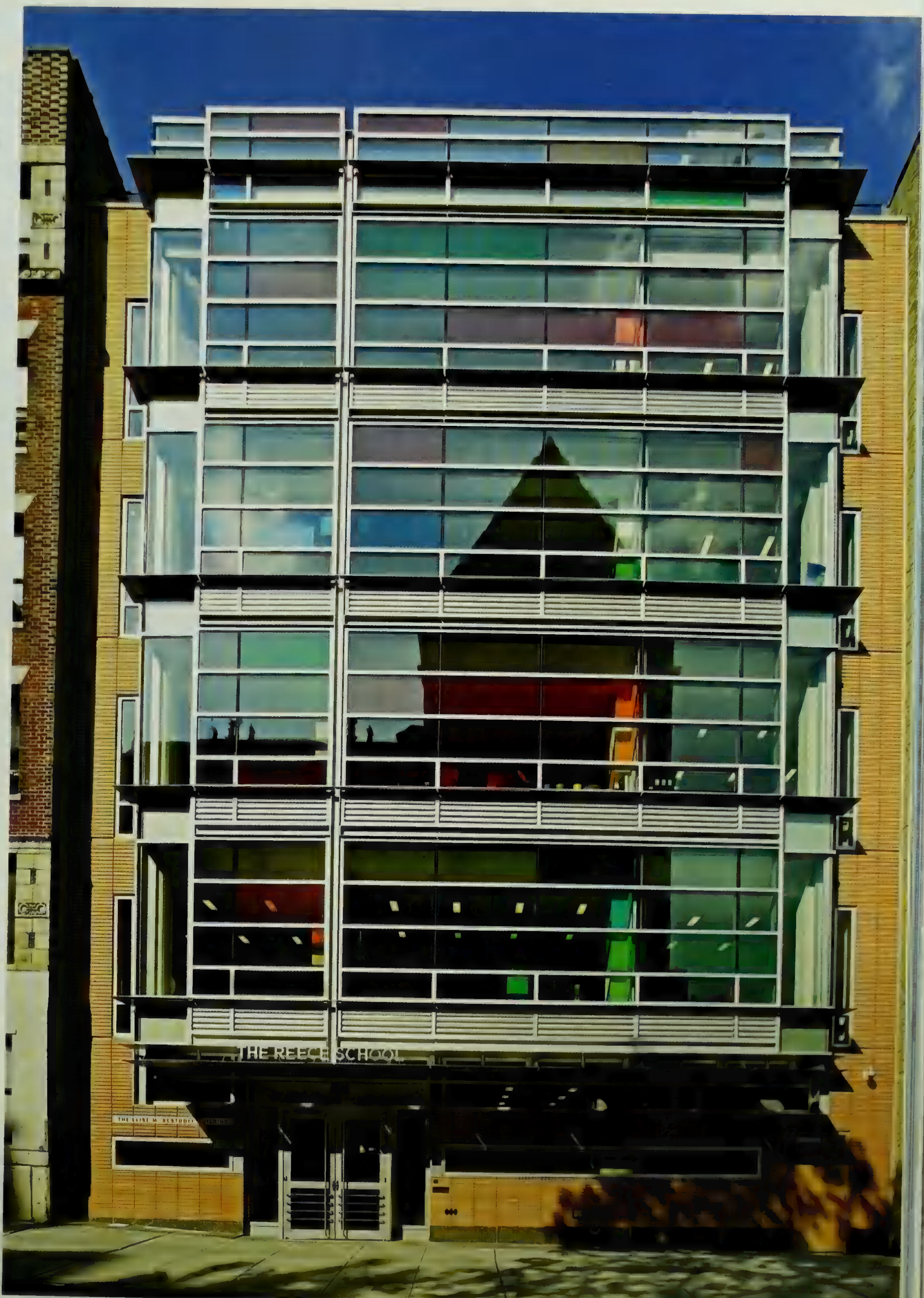


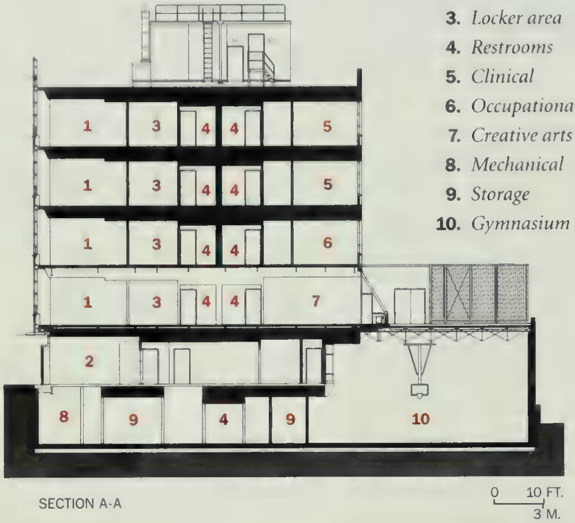
Solution

"Mom, they got lockers, just like a real school," Colasuonno remembers overhearing shortly after the new five-story building opened its doors. "Just like a real school" was exactly what architect and client were aiming for. "We're trying to create an environment that is as normal as possible, because every day we are training for the future," Colasuonno says. In one sense, the new facilities alone help accomplish these objectives. Having a lunch room, for example, prepares Reece graduates for eating in a high school cafeteria.

Another priority for the client was making the building responsive to its surroundings. "It's very important for the Reece School to be a good neighbor," Dovell says, referring

A four-story volume, enclosed in a metal-and-multicolored-glass curtain wall, cantilevers slightly from the street elevation to meet the facade planes of the adjacent buildings (this page and opposite). The glazing colors help students differentiate their classrooms, whether viewed from the street or the interior.



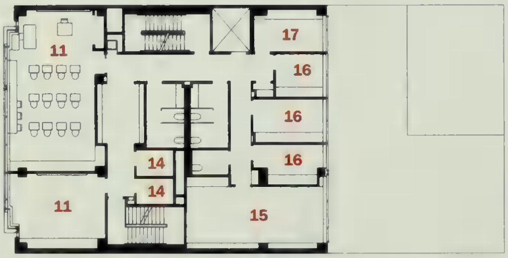


SECTION A-A

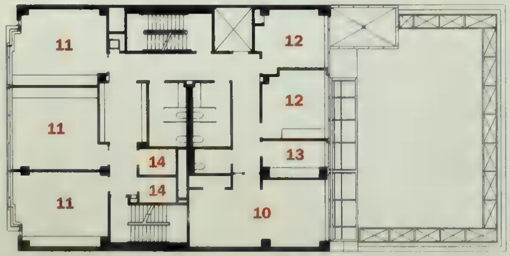
1. *Classroom*
2. *Reception/security*
3. *Locker area*
4. *Restrooms*
5. *Clinical*
6. *Occupational therapy*
7. *Creative arts*
8. *Mechanical*
9. *Storage*
10. *Gymnasium*

The lighting in the art room (below) is arranged to create a playful reflected ceiling plan. It is located at the rear of the building (right) so that it receives north light. The room has direct access to an outdoor play terrace.

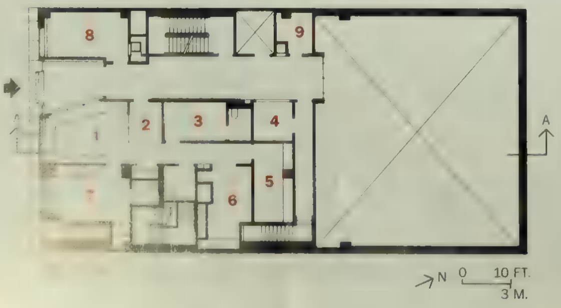
1. *Reception/security*
2. *Waiting room*
3. *Nurse's office*
4. *School store*
5. *Business office*
6. *Copy/support*
7. *Director's office*
8. *Multipurpose room*
9. *Electrical*
10. *Library*
11. *Classroom*
12. *Occupational therapy*
13. *Counseling*
14. *Quiet alcove*
15. *Staff lounge*
16. *Clinical room*
17. *Speech therapy*

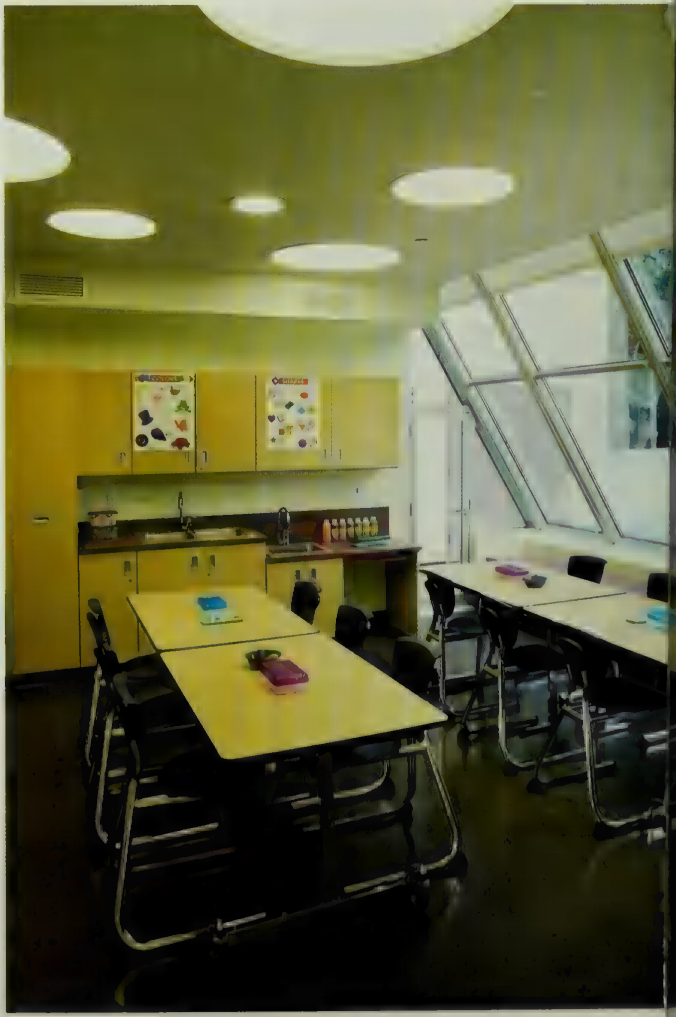


FIFTH FLOOR

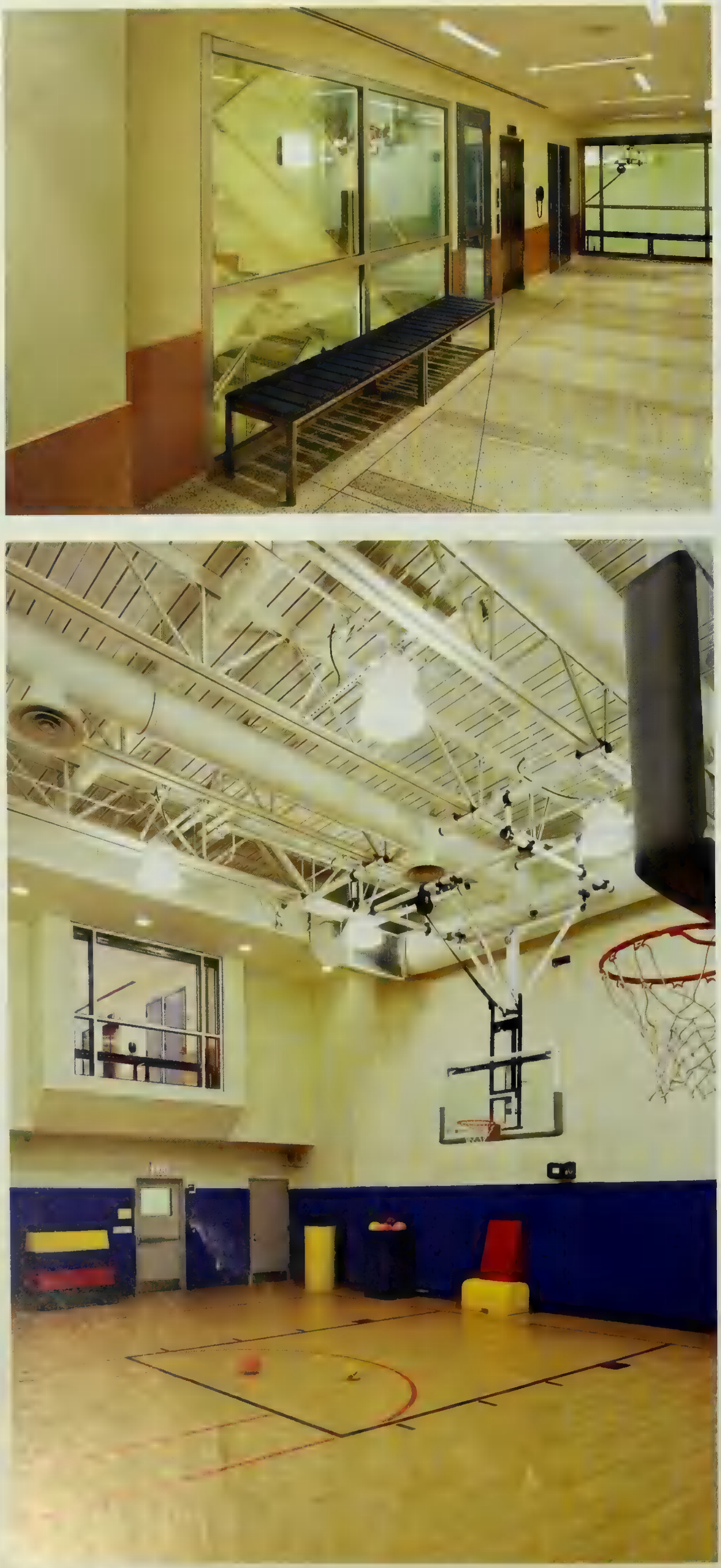


THIRD FLOOR





The school's typical instructional space (left) is an intimate 300 square feet and holds about six to eight students and two teachers. However, on the top floor, a classroom for the oldest students is designed for 12 students and two teachers (below). South-facing windows, carpeted floors, and simple but sturdy furnishings and casework contribute to the bright and comfortable environment.



The school's first floor entry hallway (left) is activated with interior windows that provide views into the basement-level gymnasium and the stairwell. The gymnasium floor is covered with a cushioned vinyl material.

to the street elevation, which faces a public school and abuts apartment buildings of similar scale to the east and west. A four-story volume enclosed in a metal-and-multicolored-glass curtain wall projects to meet the facade plane of the adjacent buildings, creating a canopy over a base of contextual brick.

Inside, the entrance hallway terminates in a view overlooking the gym. The upper levels follow a C-shaped plan with color-coded floor material and wall paint to ease orientation. Similarly, the street facade's colored panes of glass help students identify their classrooms from both the street and the interior.

Although the design strives for normality, students' unique needs are reflected in smaller elements, such as the varied use of color. Out of respect for emotional fragility, the fire alarm's unnerving shriek was replaced by a calm ring. The gym floors are covered in a cushioned vinyl material—a forgiving surface for children who frequently fall. Unprogrammed rooms serve as comforting cocoons when a meltdown is unavoidable.

Commentary

The Reece project represents just one example in a mini building boom in schools for children with special needs, and a definitive break from the past. "Particularly in public schools, special-ed classrooms were in the basement, in a trailer, wherever you could make room," says Scott Gaynor, head of the Stephen Gaynor School, another New York City elementary school with a mission similar to that of Reece. "Not much consideration had been given to sound, light, or space." Moreover, he emphasizes that inelegant solutions to providing special-needs kids a room of their own suggested second-class status.

At Reece, PBDW tackled the lessons of this history head-on. The new building, with its expanded program, friendly exterior, and attention to intimacy and interior detail, engages students' senses and minds, helping eliminate the stigma associated with special education. ■

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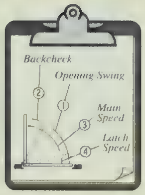

(1) *During the opening swing, the LCN closer allows for an easy opening, the type Hollywood producers dream of*

(2) *At the end of the opening swing, LCN backcheck prevents the door from slamming into the stop (ouch!)*

(3) *Through the long closing arc, LCN closers maintain a uniform, reasonable speed If only they'd do the same for our driving*

(4) *The latching arc allows the door to close quietly and firmly. Shhhhh-weet!*

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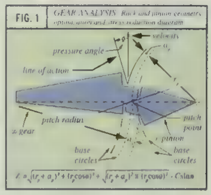
AND NOW FOR SOMETHING THAT MAKES A TAX RETURN SEEM DOWNRIGHT SIMPLE

FIG. 1



Chances are, you have not seen anything this brain-numbing since tenth-grade chemistry. But this little equation, a mere warm-up for our team of engineers, is the basis behind the precision of LCN closers. It translates to: *Your door opens and closes perfectly every single time.* Now don't go thinking you can take the equation and start your own door closer company. If you happen to have the brain power to understand it, you are likely already happily employed here at LCN.

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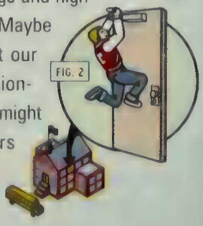
FIG. 2



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Toward a Cybernetic Site

THE ARTIST MARY MISS AND ARCHITECTS MARLON BLACKWELL, KIERANTIMBERLAKE ASSOCIATES, AND LAKE/FLATO RADICALLY REINTERPRET SITE CONSTRUCTION IN THREE NEW PROJECTS

By Russell Fortmeyer

The New York artist Mary Miss has proposed building a 1,500-foot bridge across a canal at a new 100-acre art and nature park for the Indianapolis Museum of Art. Miss is working with the New York structural engineer Guy Nordenson on developing the bridge as an innovative viewing device—a central platform for walking across, surrounded on either side with ha-ha's, or walkways depressed 42 inches that form a sort of moat, which visitors can occupy along the bridge's length. Imagine a "W" section through the bridge, with a wider center peak as the main path. The idea is to confront the viewer with nature, lessening the force of architecture by making such things as handrails effectively disappear.

"I'm trying to get people to notice what they take for granted in a landscape, to reveal multiple aspects of the site," Miss says. "The bridge seems to be a platform with no edges—I want you to feel free to see this place as you've never seen it before." In the 1970s, the art historian and critic Rosalind Krauss placed the work of artists like Miss in a new conceptual framework of practice, in an expanded field that included "site construction." For Krauss, these artists did not work in the conventions of sculpture, but in a category that existed between traditional notions of landscape, architecture, and sculpture.

An increasing number of architects and designers embrace this notion of site development—spanning between the traditional roles of architect and landscape architect—embedding a variety of interpretations of site conditions into a new performance-based architecture of sustainable principles. But an architect must be interested enough in this new scope of opportunity, in areas such as groundwater-recharge and wastewater-treatment design, since it falls outside traditional practice.

CONTINUING EDUCATION

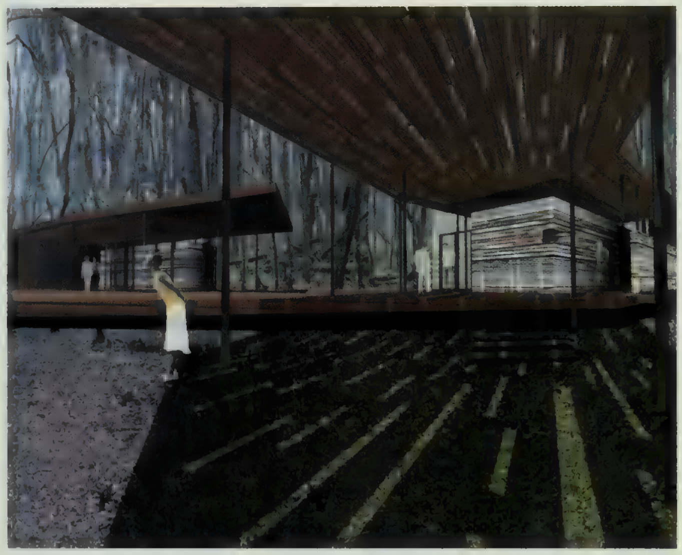
Use the following learning objectives to focus your study while reading this month's ARCHITECTURAL RECORD/ *AIA Continuing Education article. To receive credit, turn to page 156 and follow the instructions. Other opportunities to receive Continuing Education credits in this issue can be found on page 163.*

LEARNING OBJECTIVES

After reading this article, you should be able to:

1. *Explore projects categorized as site constructions.*
2. *Describe the concept of performance-based architecture in sustainable environments.*
3. *Explain how water is managed at various sites.*

For this story and more continuing education, as well as links to sources, white papers, and products, go to **architecturalrecord.com/tech/**.



The proposed Interpretive Center at the Indianapolis Museum of Art.

The site of the Indianapolis project lies within an elbow of the White River, which runs from north to south, looping around the western edge of the park. A 35-acre lake, the legacy of a quarry mined to build a nearby highway, occupies the park. A canal dating to the 19th century slices the site off from the main museum building on a bluff to the east. The new park lies in a 100-year floodplain, though the park's landscape architect, Ed Blake, wonders if the impact of global warming doesn't make such considerations for a site as utterly dynamic as this one a little bit useless. Blake's approach is not to keep water out, but to understand how it will travel.

"Because of flooding, you always have plants and soil coming into the site," says Blake, the principal of Hattiesburg, Mississippi–based Landscape Studio. "It's always in a perpetual state of disturbance." The trick for Miss and Blake, as well as the architect for two buildings on the site, Marlon Blackwell, AIA, is to implement designs that flexibly correspond to a man-made site colonized by the forces of nature, be they water or plant.

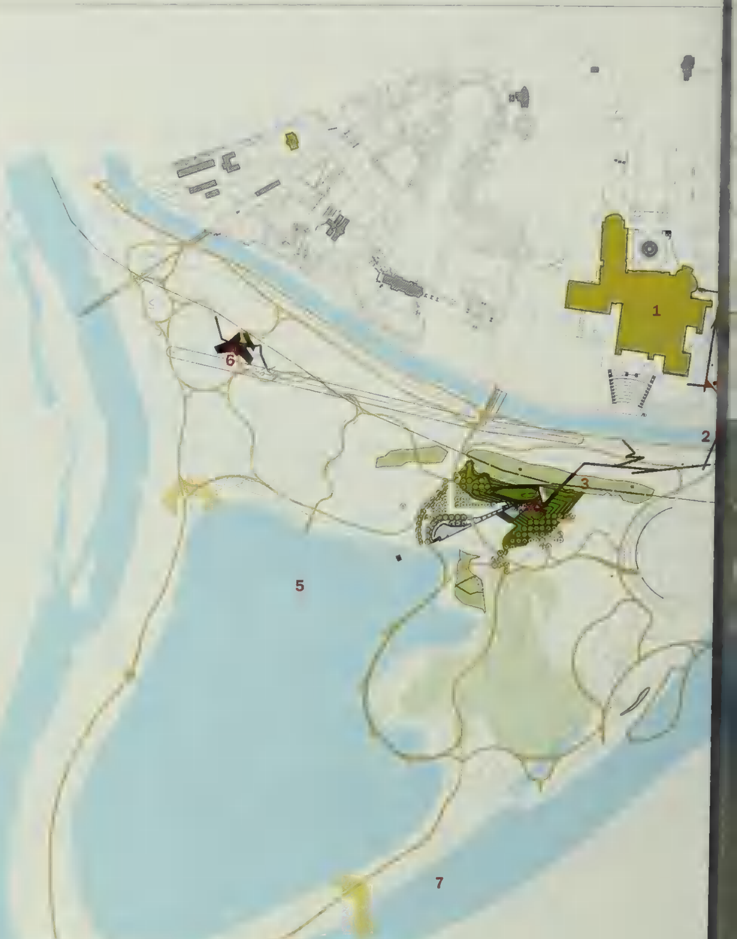
Of an artificial nature

Each designer has incorporated the site's inescapable presence of water into the proposed designs. Water sourced at the museum flows in a channel underneath Miss's path and bridge down to Blackwell's first structure, called the Experiential Center, which acts as a transitional boundary between architecture and the natural world with a rooftop pool around which visitors descend into a pavilion defined by a forest of columns. A rectangular aperturelike space 60 feet wide by 10 feet high meant for viewing the site's expanse defines one wall of this space. The entire structure sits on what Blackwell calls the "mount," a pile of vegetated debris left from previous construction; the mount will be more soundly reconstructed as the park develops.

Project: *Indianapolis Museum of Art, Virginia B. Fairbanks Art & Nature Park (proposed)*
Location: *Indianapolis*
Architect: *Marlon Blackwell, with Mary Miss*
Landscape architects: *The Landscape Studio—Ed Blake; NINebark—Eric Fulford, Ann Reed*

The park lies west of the museum in a 100-year flood plain. The site's program includes a bridge, various walkways, a viewing pavilion, classroom and gallery buildings, wetlands, and vegetation restoration. Ongoing, evolving, site-specific art commissions will eventually populate the site.

Mary Miss's proposed elevated walkway (above), constructed of perforated metal, will take visitors through the site's forests. A "runnel," or open channel, of water runs underneath the walkway, helping to connect visitors to the presence of water on the 100-acre park grounds.

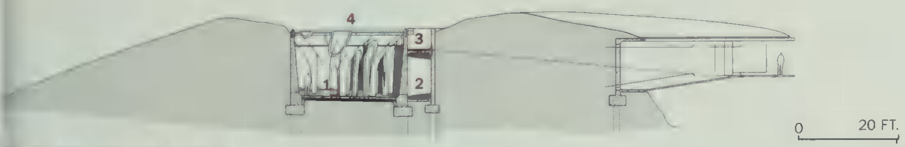


1. *Existing museum*
2. *Bridge*
3. *Wetlands*
4. *Experiential Center*
5. *Quarry lake*
6. *Interpretive Center*
7. *White River*

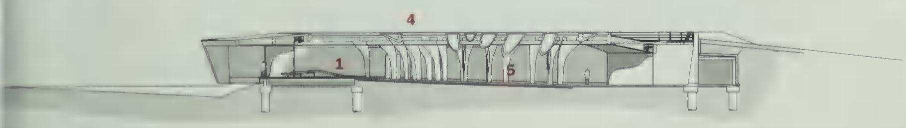
A path leading north from the Experiential Center follows rain gardens planned by Blake, skirting along a constructed wetland that will recycle all water used by that building and the next, which Blackwell calls the Interpretive Center. This gallery and classroom building, raised off the ground on pilotis, incorporates porous roofing and floor-decking systems to preserve groundwater recharge. "In some ways, the building is like a giant leaf," Blackwell says. In some circles, this would be considered biomimicry, or the adaptation of natural structure and performance to the built world. Miss, Blake, and Blackwell each practice a form of this, but shy away from using trendy terminology, including such seemingly innocuous words as sustainability. "I think of landscape as a building," Blake says. "I may put more water in or make it drier, or put pavement in to raise the temperature—all of those manipulations of nature-made materials are really human-made habitat."

A growing body of literature supports the design approach epitomized by the Indianapolis project. *Land and Natural Development (LAND) Code: Guidelines for Sustainable Land Development* (John Wiley & Sons, [illegible]), written by landscape architect Diana Balmori and Gaboury Benoit [illegible] June 2007, page 186], explores site design strategies based on the [illegible] studies and technical resources available, rating various options to help designers understand what would contribute most to a project. For example, the book argues for a site imperviousness of less than 10 percent—plainly documenting the damage of higher imperviousness on watersheds. It then recommends solutions like rain gardens or green roofs.

Randolph T. Hester's thorough *Design for Ecological Democrac* (The MIT Press, 2006) artfully pleads for more of a total approach to city design based on a philosophy of community involvement and recognition of the interconnectedness of nature and urban infrastructure. Hester, a professor of landscape architecture at the University of California at Berkeley, is chiefly concerned with placemaking, long a design imperative of the landscape architect, but only rarely invoked in terms of sustainabl design. As many architects will agree, sustainable design's value depend in large part on how much a client appreciates it. Hester's book calls t mind Ian L. McHarg's 1967 *Design With Nature* (Wiley, reissued 1992) which focuses primarily on placing cities within the larger contexts o regional watersheds and geological development. Clearly, the newer book are written to be used almost as tools, more pragmatic than McHarg' philosophical meditation on the big picture. Regardless, the literature al seeks to address what is perceived as the biggest challenge to the reclamation of site: rapid urbanization.



IAL CENTER EAST-WEST SECTION



TIAL CENTER NORTH-SOUTH SECTION

1. *Viewing hall*
2. *Hollow columns*
3. *Corridor*
4. *Rooftop pool*
5. *Exterior corridor*

The Experiential Center (sections, left) is embedded in an existing mound. Mary Miss's bridge (below), shown in an early planned version, will allow visitors unencumbered views of the park's site.

Sidwell Friends, a first for constructed wetlands

Philadelphia-based firm KieranTimberlake Associates is no stranger to site innovation, having developed the prefabricated Loblolly House for a sensitive coastal wetland site in Delaware [RECORD, November 2006, page 185]. For the firm's recent expansion of the Sidwell Friends School in Washington, D.C., the architects incorporated a constructed wetland into a courtyard of the building in order to process its wastewater for reuse in flushing toilets, among other uses for nonpotable water. The district's health department hasn't approved the wetland's gray water for irrigation purposes, so a separate system collects storm-water runoff for irrigation.

The wetland, the first of its kind for D.C., occupies a series of terraces in the courtyard—premium space the architects argued should be used as much for teaching purposes as for lessening the building's water use. Opened in fall 2006, the expansion uses 90 percent less water than comparable buildings, which helped it earn a LEED Platinum rating from the U.S. Green Building Council. "Primarily, it had to pump sewage," says Stephen Kieran, FAIA, the project's architect. "But it also had to be beautiful, since it's right at the entrance to the building. It became an environmental aesthetic."

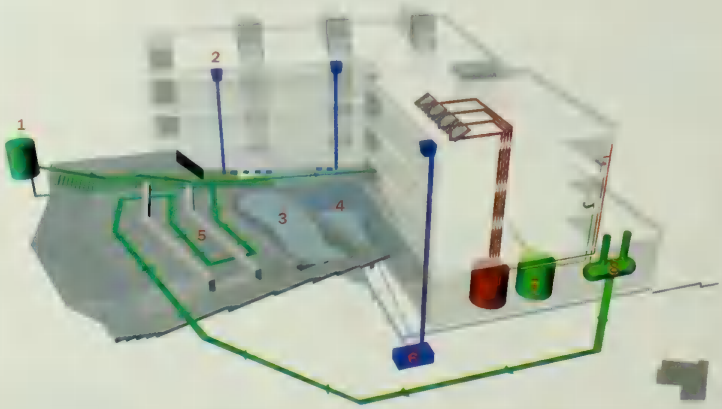
Unlike Indianapolis, the Sidwell project is located in a dense urban site, where architects must reconcile land use with significant economic pressure and a city government less inclined to approve unconventional technology for use at a school. The urban location further obscures the effects of the project's storm-water runoff, especially sensitive since Sidwell's location in Northwest Washington places the campus in the watershed of Rock Creek Park to the east.

Sidwell's wetland was instigated by the project's environmental consultant, Bill Reed, but was designed with the guidance of Michael Ogden, a wetland expert and civil engineer with Natural Systems in Santa Fe, New Mexico. Ogden says Sidwell represents the first total reuse system—in that only negligible amounts of water leave the site via utility drainage systems—installed in an urban site in the country. "We don't normally think of wastewater-treatment systems as architectural elements," Ogden says, cognizant of the fact that generations of students passing through the school will now have first-hand experience with a process otherwise invisible in the urban landscape.

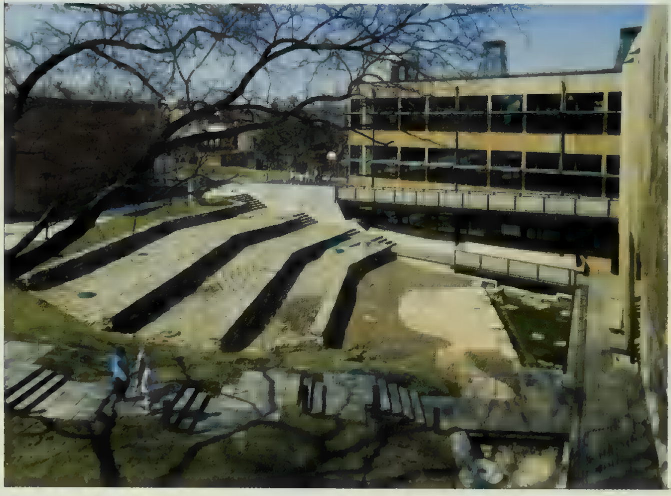
The six-and-a-half-day process, which treats nearly 8,000 gallons of water per day, begins with a primary treatment tank, where sewage from the 72,500-square-foot expansion/renovation project encounters anaerobic bacteria such as that found on the bottom of a pond. It is then pumped to a trickle filter, where it falls over rocks before moving on to

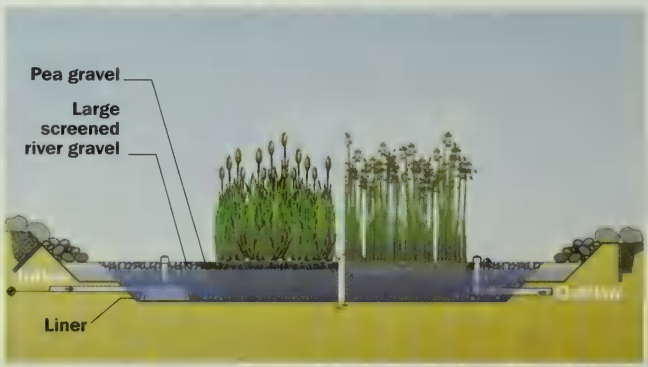
Project: *Sidwell Friends School (built)*
Location: *Washington, D.C.*
Architect: *KieranTimberlake Associates*
Landscape architect: *Andropogon Associates*

KieranTimberlake Associates added 39,000 square feet of new classroom space for a junior high campus. The courtyard includes a constructed wetland sewage-treatment system (right) that filters all of the water from the building for flushing toilets. A separate stormwater-collection system provides water for irrigation.



1. *Trickle filter*
2. *Roof drain leaders*
3. *Bioretention pond*
4. *Biology pool*
5. *Constructed wetland*
6. *Rainwater cistern*
7. *Gray-water storage*
8. *Primary treatment tank*





The plants in the terraces of Sidwell's subsurface-flow constructed wetland (left) are expected to grow in over the summer. Subsurface wetlands (above) control odors and environmental hazards by keeping water underground.

the tiered wetland. Thus far, a typical gallon of water has been in the system roughly three days; the wetland itself requires another two days.

Sidwell's wetland consists of microorganisms and microinvertebrate populations attached to the root hairs of plants, mostly stalked bulrush, a form of papyrus. Ogden says the thousands of bacteria types found on the roots of such plants ensure that most compounds in the sewage can be treated, noting that wetlands are better at removing prescription medicines from water than most utility wastewater-treatment plants. Sidwell's wetland is of the subsurface-flow variety, where water lies beneath layers of pea gravel. Subsurface-flow wetlands, as opposed to the surface-flow type, are used when it would be likely for people to regularly come into contact with the water and when odors could pose problems. (A Living Machine, a proprietary tank-based constructed wetland, typically needs to be confined to a restricted room because of odors and health concerns.)

Finally, the water passes through a sand filter, where anything the wetland missed is removed prior to collecting the water in a storage tank where it can be used for flushing toilets. Color-coded purple pipe, required by the Uniform Plumbing Code, indicates gray-water systems in the building, which prevents plumbers working in the building in years to come from cross-connecting with potable systems. Further, Ogden says his company injects biodegradable blue dye into the water to prevent confusion.

While a school may not pose significant challenges to a wetland, since even conventional cleaning products are generally easily filtered, Ogden has used wetlands in tough cases like landfills, refineries, food-processing facilities, and slaughterhouses, all in a variety of extreme climates. "They are much better than industrial technology, since machines break," Ogden says. "We need to rely on self-organizing, self-regulating systems that connect to the natural environment."

Government Canyon, gateway to an endangered aquifer

Establishing a connection to the natural environment impressed itself immediately on Lake/Flato Architects when the San Antonio–based firm undertook design on the Government Canyon Visitor Center in Helotes, Texas. The project, completed in October 2005 as a gateway to an 8,000-acre groundwater recharge conservation district, straddles the threshold of a watershed feeding the Edwards Aquifer—San Antonio's main source of water. The center's south side faces a parking lot, while the north side overlooks the periphery of the environmentally sensitive recharge zone.

Lake/Flato designed three structures—classroom, gallery, and combination administrative/gift shop buildings—all oriented around a

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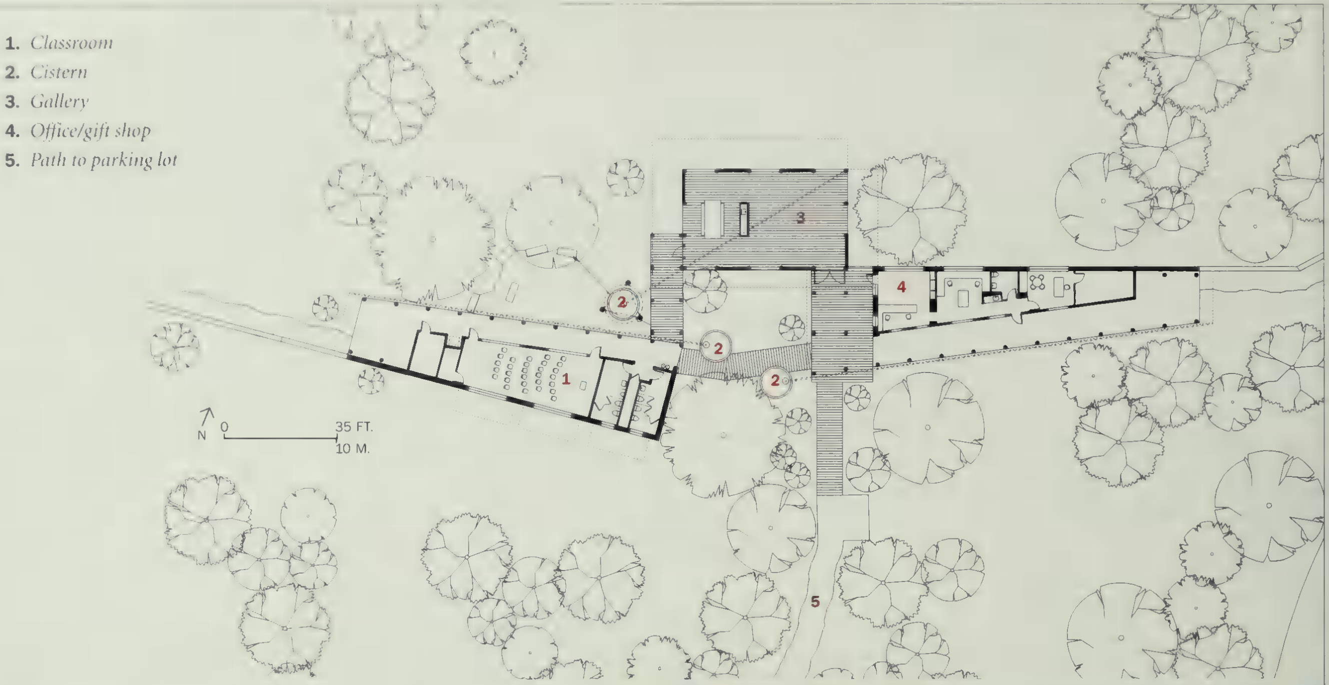
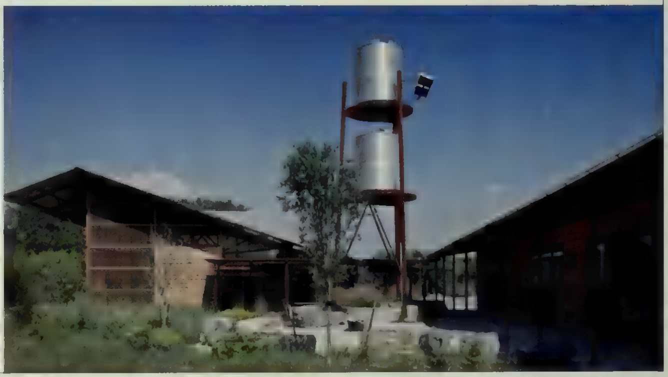


Project: *Government Canyon Visitor Center (built)*
Location: *Helotes, Texas*
Architect: *Lake/Flato Architects*

Government Canyon, which acts as a gateway to an environmentally sensitive groundwater-recharge preserve open to hikers and bicyclists, relies on a gravity flow stormwater system to minimize the need for energy-consuming pumps. Solar-powered pumps provide what little energy is required to get water into the tower's cistern (right), which provides pressurized water for flushing toilets and irrigating the nearby landscape.



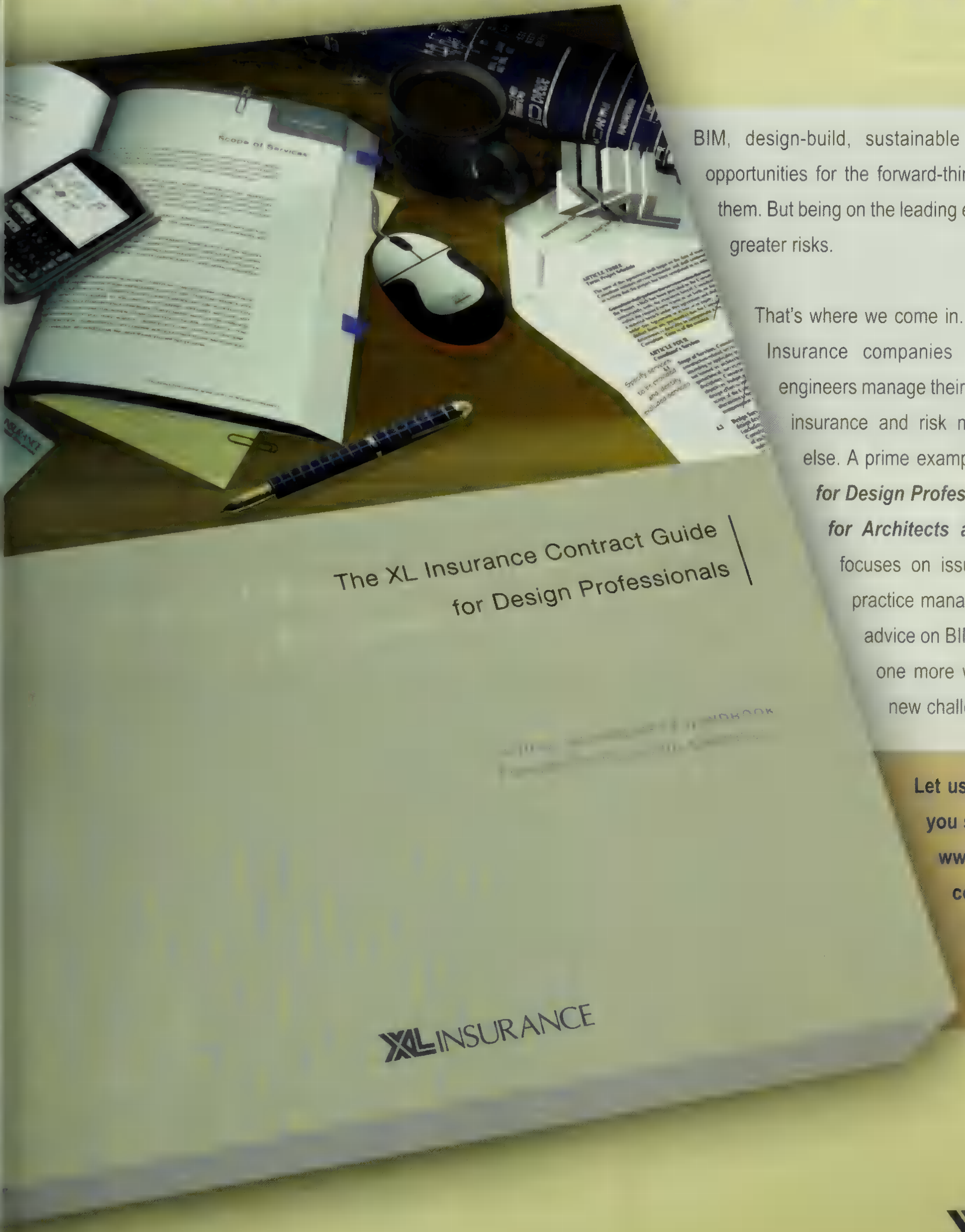
courtyard storm-water-collection system. The sloped, corrugated-metal roofs of each building siphon rainwater into gutters and onto rain chains descending into two underground concrete cisterns (roughly 8,600 gallons each), mimicking the naturally sloped land and percolation process of the aquifer's catchment basin. A solar-powered system pumps water to a third cistern, perched atop a tower, which creates pressure for flushing toilets and what little irrigation the center's plants need. State officials rejected the use of a constructed wetland for treating sewage, arguing it could threaten public health (a common argument in many jurisdictions), so it flows into a conventional septic tank system.

"We wanted to demarcate the edge of the recharge zone with our buildings," says Robert Harris, AIA, project architect on the Lake/Flato team. "The long wings stretching out across the landscape with dry-stacked stone walls indicate where the aquifer's preservation begins." Harris says design began with establishing the average expected annual rainfall amounts (32 inches) and then calculating how much water the roof area would collect. Once designers subtracted the amount of water needed to flush toilets, the remaining water volume determined the area of irrigated landscape the project could support. A backup valve connec[illegible] utility water source ensures toilets will always flush. Harris notes that some rural districts view stormwater collection as robbing a watershed, but in Texas, where rapid runoff and flooding pose serious soil-erosion problems, slowing the water down helps immensely.

While visitors can't miss the stormwater-reuse system, the subtlety of the architectural moves undertaken by Lake/Flato—like the site itself—require more careful observation. For example, the architects raised the central gallery building 18 inches above grade, supporting the wood-deck floor with rusted steel pipes high enough off the ground to allow the natural flow of water underneath. A topographical survey, commissioned by the Texas Department of Parks and Wildlife, helped the architects determine how to orient the project with minimal disturbance to the watershed. "In urban watersheds, that work has been done for you, but in rural ones, you often don't discover what's happening until it's changed," Harris says. "Regional planning for watersheds is just not an institutionalized part of our development process."

From impervious to pervious at Philadelphia's Navy Yard

The idea of the pristine site in America is most likely a thing of the past. Even Government Canyon, as lush and bucolic as it appears, experiences the aftereffects of nearby suburban sprawl development. While Sidwell



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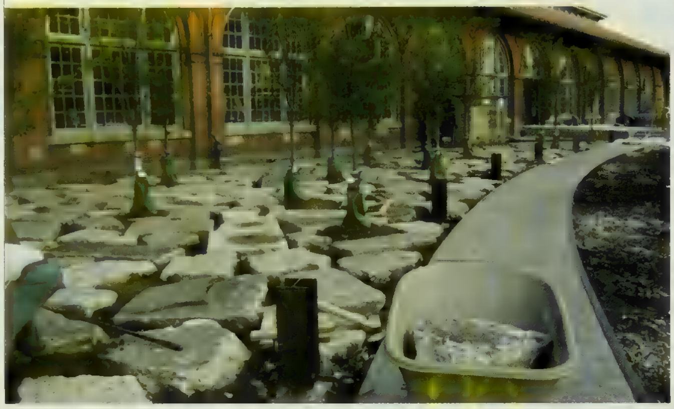

D.I.R.T. Studio's design for a new courtyard in the existing Navy Yard in Philadelphia required contractors to break up an existing concrete slab (right) and reuse the rubble as pervious paving around newly planted trees (below).

exposes the constructed nature of landscape most apparently, the Indianapolis park development cannot escape its industrial legacy, where the site's topography represents layers of decisions made for various economic reasons decades ago. These embedded narrative threads—landscape histories made evident through the ingredients of nature—form the working methodology of Charlottesville, Virginia–based D.I.R.T. Studio. The studio's two landscape architects, Julie Bargmann and Christopher Fannin, approach each site design as an investigation of existing conditions, with the goal of reconfiguring those into an emergent, new condition. "These postindustrial places have these echoes and we have to find in them the transformative agent that makes them relevant today," Fannin says. "We also work with the premise that nothing leaves the site."

D.I.R.T.'s design for the Navy Yard in Philadelphia, which included a courtyard for the Urban Outfitter's retail group, incorporated artfully demolished concrete chunks from an existing impervious parking lot that were reinstalled in a layer of porous gravel around newly planted trees—water can now flow freely into the ground. Bargmann notes of the project, completed in early 2006, "This is not high technology, just a new way of building." As American developers return to the city as the new territory of expansion, such innovative ways of designing for and building on a site—of understanding the baseline of what constitutes the inhabited natural world in a technological age—will certainly figure greatly in the success or failure of any venture. The real question is whether architects will help people see this, or construct another barrier. ■

AIA/ARCHITECTURAL RECORD CONTINUING EDUCATION

INSTRUCTIONS

- Read the article "Toward a Cybernetic Site" using the learning objectives provided.
- Complete the questions below, then fill in your answers on the next page.
- Fill out and submit the AIA/CES education reporting form on the next page or download the form at archrecord.construction.com to receive one AIA learning unit.

QUESTIONS

1. Which is not the design idea for the bridge across the canal at the Indianapolis Museum of Art?
a. to confront the viewer with nature
b. to get people to notice what they take for granted in a landscape
c. to keep people separated from the water
d. for the bridge to be an innovative viewing device

2. Since the Indianapolis park lies in a 100-year floodplain, the architect's approach was to do which?
a. keep water out
b. keep water in
c. construct a path for water flow
d. understand how water will travel

3. The architect refers to the Interpretive Center as a "leaf" for which of the following reasons?
a. the structural steel resembles a tree
b. the porosity of the roof and deck material allows water to flow through
c. the building's canopies collect leaves for composting
d. the color of the building changes with the seasons

4. What will be done with most of the water used by the Experiential Center and the Interpretive Center?
a. it will be channeled into the canal
b. it will be recycled through a constructed wetland
c. it will be drained into a cistern
d. it will be drained into a septic tank

5. The Sidwell Friends School reuses the building's wastewater for which purpose?
a. to water the grounds
b. to supply a decorative fountain
c. to flush toilets
d. for fire standpipes

6. Before the Sidwell wastewater enters the wetland, it goes through all except which?
a. a trickle filter of rocks
b. plant root systems
c. a primary treatment tank
d. a tank consisting of anaerobic bacteria

7. What color pipe is required by the Uniform Plumbing Code for gray water?
a. gray
b. yellow
c. blue
d. purple

8. The wastewater from Government Canyon flows into which?
a. sewers
b. wetlands
c. septic tank
d. river

9. The architects raised Government Canyon on pilotis to allow the stormwater on-site to do what?
a. flow naturally through the site
b. pass into moats around the perimeter
c. percolate into the landscape
d. flow into storm sewers

10. The author of this article contends which about sites and watersheds?
a. a pristine site most likely will not be found
b. most sites experience the effects of other development in the region
c. a site's topography may represent decisions made decades ago
d. all of the above

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Program title: "Toward a Cybernetic Site," Architectural Record (07/07, page 149). 077EDIT1

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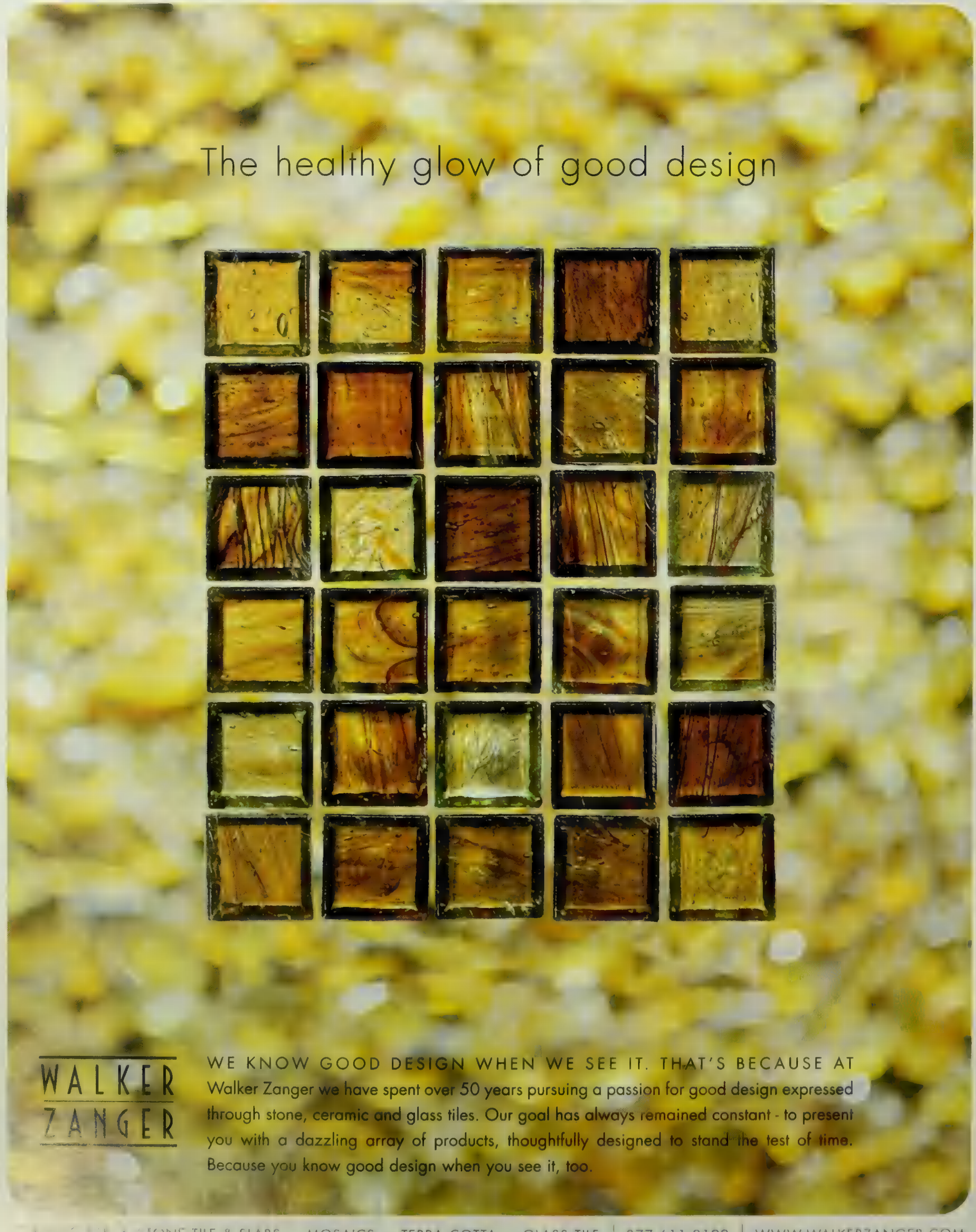

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Tech Briefs

To create Seattle's Olympic Sculpture Park, the design team **shaped the land**, reinforced a fragile seawall, **and restored the shoreline's ecosystem**

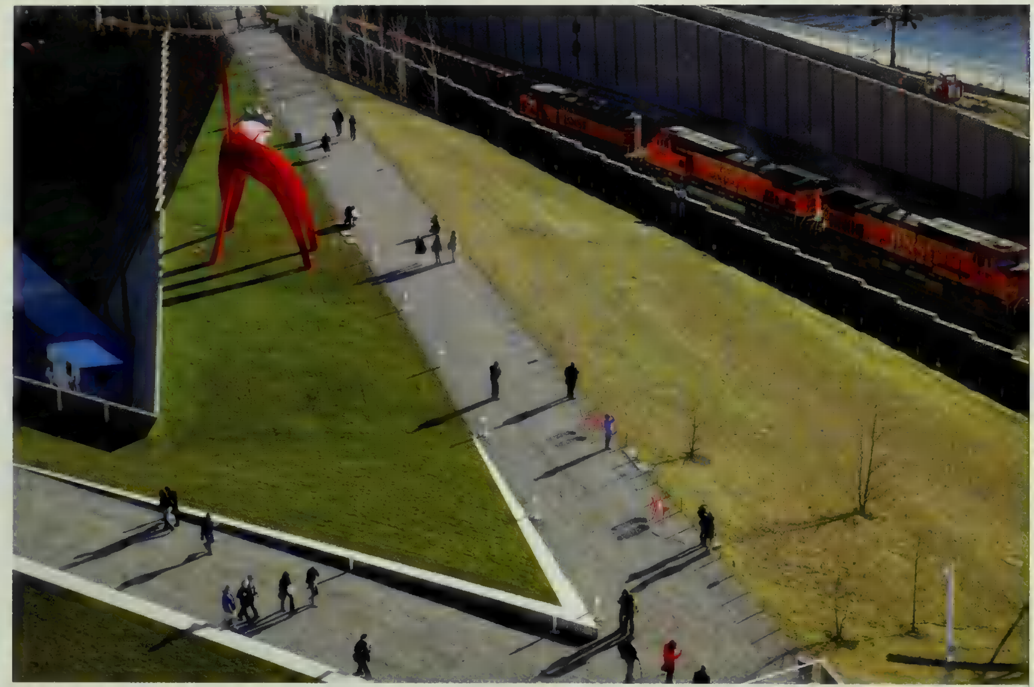
Former brownfield site reinvented as a connection between the city and the water's edge

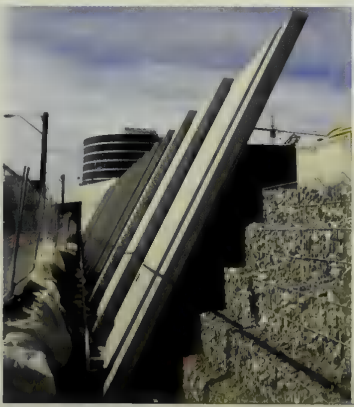
To create Seattle's new Olympic Sculpture Park, lead designers Weiss/Manfredi have fittingly sculpted the earth. At the northwest corner of downtown, overlooking Elliott Bay, on land previously used as a fuel storage and transfer facility, the New York City–based firm developed a Z-shaped path that crosses a busy street and active railroad tracks and negotiates a 40-foot grade change. The serpentine route takes visitors past carefully placed works from the Seattle Art Museum collection, including pieces by Alexander Calder, Richard Serra, and Louise Nevelson, and provides stunning views of the city and the surrounding landscape (see story, page 110).

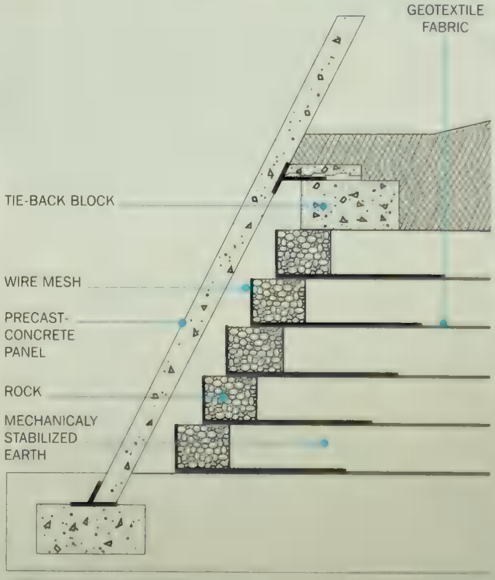
Not surprisingly, an extensive system of retaining walls was needed to make this new topography and hold back the 8.5-acre site's 200,000 cubic yards of fill. The only visible part of the system is its overlapping and sloping concrete panels, each 12 feet wide and as tall as 30 feet. The repetitive nature of these precast elements creates "a module and a measure, allowing the site to feel bigger," and provides an appropriate backdrop to the sculpture, says Marion Weiss, AIA.

The real "work" of retaining the earth is actually occurring behind the precast panels. There, mechanically stabilized earth (MSE) holds back tons of fill. "Decoupling" the earth-retaining function from the architecture was a more cost-effective solution than a traditional poured-in-place concrete retaining wall backfilled from behind, says Drew Gangnes, director of civil engineering for Magnusson Klemencic Associates (MKA). The firm was both civil and structural consultant for the project.

The MSE stretches horizontally under the park surface for a distance equal to about 80 percent of the height of the wall, and is made up of

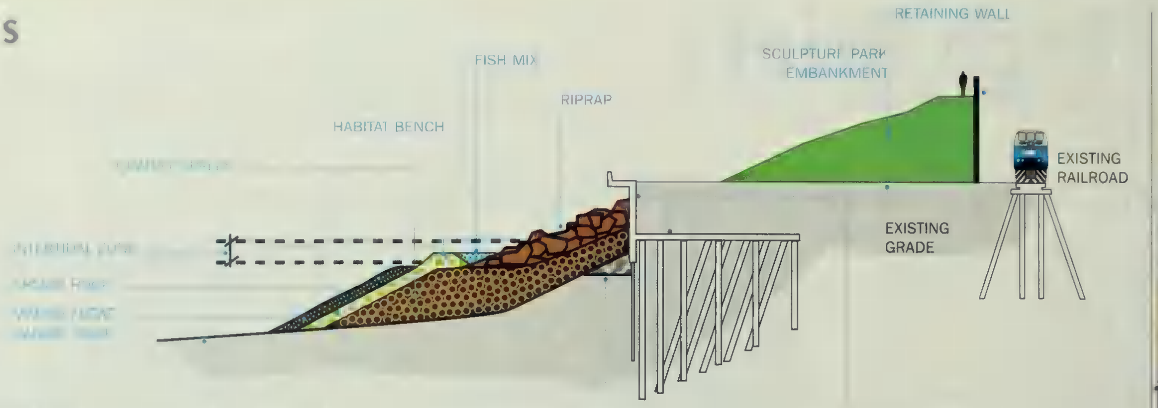






RETAINING WALL SECTION

To bridge a busy street and an active rail line, designers created a Z-shaped path and sculpted the earth (top). To hold back 200,000 cubic yards of fill, engineers devised a mechanically stabilized earth retaining-wall system hidden behind overlapping and sloping precast panels.



SEAWALL BUTTRESS SECTION

A buttress system stabilizes the aging timber-and-steel seawall along the shoreline. It was designed to also provide refuge for migrating salmon (section, top). Just beyond the end of the seawall, the designers have created a beach (above). The MSE retaining-wall system used to form the park's contours is composed of layers of soil separated by geotextile fabric. Near the face of the MSE, the soil transitions to rock held in place by wire mesh (right).

18-inch-deep layers of soil separated by geotextile fabric. Near the face of the MSE, the fabric transitions to wire mesh, L-shaped in section, and containing rock rather than soil.

The panels are attached to the MSE system with slotted connections to a continuous tie-back block just below grade level and to the footing. To prevent transfer of loads from one panel to another due to settlement or seismic activity, adjacent panels are not connected, explains Jay Taylor, MKA principal. A gap of a few inches between the panels and the MSE face was sized so that the [illegible] did not slam into [illegible] temblor, and to [illegible] from toppling.

[illegible] included reinforcement of the sculpture park's deteriorating 800-foot-long timber-and-steel seawall. City and state agencies had been studying the wall's reconstruction as part of a larger proposal to rebuild about 8,000 feet of seawall protecting the downtown waterfront. Preliminary design documents showed the agencies planned a costly behind-the-wall intervention that would avoid disrupting the piers that line much of the Elliott Bay shore.

Since there were no piers along the park's section of waterfront, and because its seawall was not adjacent to a seismically and politically sensitive elevated highway, designers had some freedom to explore alternatives. Their solution was to reinforce the existing seawall with an in-the-water buttress. But in order to obtain permitting, the team had to develop a system that would create a hospitable environment for migrating salmon in addition to providing the necessary reinforcement.

The team satisfied both the habitat and structural requirements using layers of riprap and smaller diameter rock carefully sized to create an uninviting environment for salmon's predators. Incorporated into the buttress, at the level of the intertidal zone, is a so-called "habitat bench." A hollow in this bench is filled with aggregate and other material that supports the growth of organisms that salmon like to eat.

Gangnes estimates that this $5 million buttress, which he jokingly refers to as a "pile of rocks," cost about a tenth of what the proposed city/state solution would have.

Just beyond the end of the seawall, at the northern end of the park, the team designed a crescent-shaped beach protected by two peninsulas. Environmental consultants used computer simulation to model the motion of the waves and wind to make certain that the sand would not be carried away. This beach is the culmination of a journey from the city to the water's edge, from the most urbane part of the park to that most connected to nature. "It brings in both extremes," says Weiss. *Joann Gonchar, AIA*

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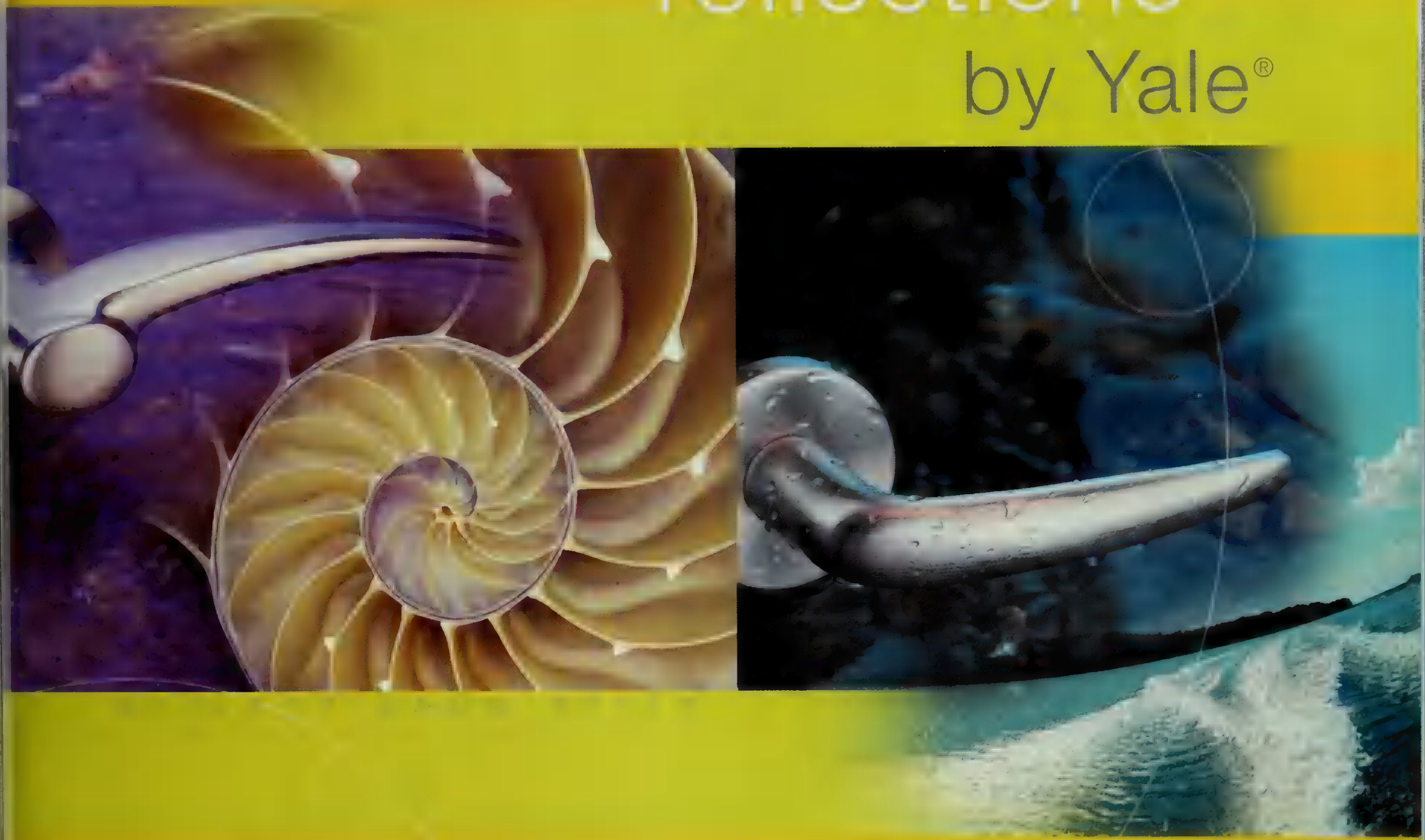

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Market Trends Drive the Need for Effective Sound Solutions

Acoustically enhanced gypsum board and other options offer efficient ways to build better partitions

Provided by National Gypsum Company

Noise is an increasing concern in structures of all types. Skyrocketing land costs have spurred high-density multifamily housing and office construction in a growing number of markets in the United States. Nationwide, retirement-age baby boomers ire downsizing from single-family homes to condominiums and townhouses. In high-rise iousing, individual living units are closer together than in traditional single-family lwellings—putting tenants in position to hear sound from neighboring units. Noise is also i potential problem in single-family dwellings where home theater systems are becoming nore prevalent in use and sophisticated in technology, resulting in the possibility of more ioise being transmitted between spaces. Schools, hospitals, retirement homes, hotels and esorts are also seeking methods of keeping rooms quieter, and are increasingly looking or ways to control sound among areas within their facilities.

iuch changing market dynamics have meant an increased need for wall partitions that can educe the transmission of airborne sound between spaces within buildings. In addition, in nany places specific levels of acoustical performance are mandated by building code.

Vhile some acoustical solutions have existed for decades, manufacturers have also esponded to the growing need for sound control with new products that achieve the same ir better results with easier and more reliable installation, as well as lower material and abor costs and less floor space.

imong the challenges to architects and owners is to be aware of all the available solutions ind to understand which are consistent with the goals of a particular project. This article vill discuss the ways in which acoustical control can influence building design. The omparative advantages of traditional and new sound-damping solutions will be ighlighted, as will best practices in increasing STC performance of wall partitions.

Iarkets for Increased Sound Control

onstruction of apartments, townhomes and condominiums is on the rise. To illustrate this oint, consider the housing situation in San Diego, California, the nation's eighth largest ity and one of the most expensive housing markets in the United States. In 2006, building ermits in San Diego for multifamily housing units exceeded those for single-family esidences for the first time since 1990.

Iultifamily housing, with hundreds of families living in close proximity, brings on the otential for noise-related complaints. In a national survey of 1,500 adults conducted by lan Newman Research, noisy neighbors were the single most frequently cited annoyance f those living in multifamily dwellings. More than 60 percent cited hearing neighbors hrough the walls as the top noise compliant, with more than half identifying loud music s the chief source of that noise.

Courtesy of National Gypsum Company

Acoustically enhanced gypsum board allows for construction of higher STC area separation walls

Industry studies show that residents of detached single-family homes are seeking privacy in terms of limiting room-to-room sound transmission, with the master bedroom and laundry room of significant concern. In the educational arena, it is a widely accepted fact that quieter classrooms enhance the learning environment for students of all ages. The federal healthcare privacy law known as the Health Insurance and Portability Act has

CONTINUING EDUCATION

Use the learning objectives below to focus your study as you read **Market Trends Drive the Need for Effective Sound Solutions.** To earn one AIA/CES Learning Unit, including one hour of health safety welfare credit, answer the questions on page 167, then follow the reporting instructions or go to construction.com/CE/ and follow the reporting instructions.

LEARNING OBJECTIVES

After reading this article, you should be able to:

- Discuss trends driving the need for wall partitions that can reduce sound transmission
- Explain key acoustical terms and concepts
- Specify the appropriate sound control system for your projects

mandated that health care institutions ensure that patient information remains strictly private. Both the legal mandate and the perceived needs of their patients are driving health care facilities from hospitals to clinics to doctors' offices to seek effective sound-reduction solutions. In the competitive hospitality industry, hotels seek out new ways to attract guests, and enhanced privacy through sound-deadening partition walls is another popular trend.

In a national survey...noisy neighbors were the single most frequently cited annoyance of those living in multifamily dwellings.

Key Acoustical Terms and Concepts

Understanding key acoustical concepts is critical in order to gain an understanding of the way in which sound is transmitted through walls, as well as human sensitivity to changes in noise levels.

Airborne Sound. Airborne sound consists of energy generated by a source, transmitted through a medium, and detected by a receiver. All three of these conditions must be in place or airborne sound cannot exist. The level of airborne sound is determined by the frequency of vibrations. This measure of frequency is given in hertz (Hz). The unit hertz can be thought of as the number of sound waves that pass a fixed point within a given amount of time. For example, frequencies between 20 Hz and 20,000 Hz are detectable by children. As people age, their ability to hear high-frequency sounds is significantly diminished. Humans are most sensitive to sounds in the range of 100 Hz to 5,000 Hz. Speech and other traditional sounds within a building range from 125 Hz to 4,000 Hz, which is the frequency range considered when calculating STC.

Decibels. The units decibels (dB) are used in acoustics to calculate the intensity or loudness of sound and to provide a relative measurement of sound level. Higher dB levels relate to loud sounds while lower dB levels relate to quiet sounds. A change of 3 dB would be barely noticeable to most human's ears, while a change of 5 dB would generally be noticeable to the average person. An increase of 10 dB would sound twice as loud, and a decrease of 10 dB would sound half as loud. It's important to note that the decibel scale is not linear. For example, compare the sound of a conversation (55 dB) with that of a lawnmower (105 dB). The lawnmower is not twice as loud as the conversation, but several orders of magnitude louder—a critical factor to observe when considering construction materials to prevent external noise from being heard inside a building.

RATING	ACTIVITY	SOUND LEVEL (dB)
Painful	Jet Engine	120+
Very Loud	Industrial Machinery	100
Loud	Stock Trader Floor	80
Moderate	Normal Speech	65
Quiet	Suburban Home	45
Very Quiet	Barely Audible	25

HUMAN SENSITIVITY TO CHANGES IN SOUND INTENSITY LEVELS	
1 dB	Generally not perceptible
3 dB	Just perceptible
5 dB	Clearly noticeable
10 dB	Twice or half as loud
20 dB	Four times as loud or 1/4 as loud

Measuring Noise Reduction

Both government and industry standards were established to achieve acceptable noise levels in residential and commercial construction. U.S. standards are based primarily on a system that measures how well walls, floors, and doors prevent noise intrusion from adjacent rooms. That system is known as Sound Transmission Class, or STC. STC is a single-number rating of the effectiveness of a material or construction assembly to retard the transmission of airborne sound. It provides an indication of the volume at which transmitted sound is perceived by the listener. The higher the STC value, the more effective the assembly or material in reducing sound transmission.

For interior walls, STC values are derived by conducting a test according to a procedure outlined in ASTM E 90, "Standard Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions." ASTM E 90 is designed to measure how well building materials or specific wall assemblies reduce the transmission of airborne sound at 16 frequencies between 125 Hz and 4,000 Hz, which is consistent with the frequency range of speech and constitutes a wide range of airborne sounds at different pitches.

The ASTM E 90 test procedure is essentially conducted in the following way: In a controlled laboratory environment, a specified wall partition is built between two rooms—the source room, where airborne sound is emitted, and the receiving room, where the sound is received and measured in decibels. As airborne sound moves from source to receiving room, it naturally tends to decrease in decibels. The greater the level of decrease, the higher the STC rating.

ASTM E 413 calculates ratings for both laboratory and field measurements of sound attenuation. The test data collected would be analyzed using ASTM E 413, "Classification for Rating Sound Insulation." The result is a single-number acoustical rating. The higher the STC rating, the greater a partition's ability to reduce transmission of airborne sound from one side of a partition to another. Higher STC ratings will reduce typical noise from an adjoining room, including normal or loud conversation, a baby crying, dogs barking or sounds made by kitchen appliances.

Acceptable STC Ratings for Wall Partitions. In determining an acceptable STC rating the industry generally turns to a prominent study by the National Research Council of Canada, "Deriving Acceptable Values for Party Wall Sound Insulation," by J.S. Bradley. Looking at the attitudes of residents in 600 multifamily units with 300 party walls between them, the study found that residents with lower STC-rated walls were more likely to be awakened by noises; have trouble falling asleep due to noises; and think their neighbors were less considerate. They were also more likely to want to relocate. The study concluded that an STC rating of 55 was a realistic goal for acceptable sound insulation and that an STC rating of 60 would virtually eliminate negative effects of noises from neighboring units.

The results of the Canadian study are reflected in the federal noise-reduction standards used by the United States Department of Housing and Urban Development (HUD). HUD uses a three-tier system for rating construction quality in terms of sound attenuation. An STC-55 or above is the criterion for the highest rated Grade 1 dwelling. Ultra-high-end dwellings may incorporate wall partitions of up to STC-65. HUD's Grade 2 building indicates an STC-52 rating; Grade 3 signifies a rating below STC-52. In the national building code the minimum allowable rating for multifamily construction is STC-50.

Music-related sounds may require some of the highest STC ratings, which is important to note as loud music is the chief noise-related complaint reported by residents of multifamily dwellings. In practical terms, an STC-55 rating will enable the resident of a multifamily dwelling to remain undisturbed by a neighbor playing a loud sound system. With an STC-55 rating, loud music will be reduced to the level of a normal conversation by the time it passes through the shared wall. It is important to note that the STC ratings relate only to airborne sound; they do not apply to "structure" sounds such as footsteps or structural vibrations from street noise or airplanes flying overhead.

Achieving Acceptable Noise Levels: Design Considerations in Acoustical Wall Partitions

There are three strategies to reduce noise in buildings: eliminating the source of the noise; using sound-absorbent rather than sound-reflective materials; installing sound barriers to prevent sound transmission into adjoining areas. Most of the solutions in current use fall into the third category. Several techniques can be used alone or in conjunction with others to achieve a higher STC rating. With the goal of decreasing the amount of sound transmission through the partition, the following five variables can have an impact on the ability of the partition to provide this desired loss.

WAYS TO AFFECT SOUND TRANSMISSION

Increasing Mass. Increasing the amount of material sound waves must penetrate to reach the adjoining room is an obvious tactic. More mass means sound waves must spend more energy to flow through the wall. Using multiple layers of gypsum board is one solution that can reduce sound transmission from room to room. Increasing mass in a cost- and space-effective way presents its own challenges, however. The sheer amount of mass needed to reduce decibel levels significantly may require a wall thickness that is impractical for a building.

Eliminating Stiffness. Flexibility in the wall assembly will promote sound absorption; conversely, too much stiffness will reduce transmission loss. For that reason, replacing wood studs with metal studs, which inherently have more give to them, is a preferred practice and results in better acoustical performance. In general, less framing will achieve superior acoustical results, with 24-inch o.c. framing spacing outperforming 16-inch o.c. framing.

Increasing Damping. Damping is a technique for dissipating vibrational energy in a structure, thereby decreasing the amount of energy allowed to pass through to the next room. Damping consists of one or a combination of materials applied to the wall interior to boost its ability to reduce mechanical energy. All materials demonstrate some damping, though many materials are actually effective radiators and transmitters of sound.

Increasing Cavity Depth. Increasing the depth of the wall cavity between wall panels in two adjoining units can increase the thickness of the overall partition, and thus increase the amount of sound transmission loss, particularly when the cavity is filled with acoustical insulation.

Providing Cavity Absorption. Another way to control airborne sound from room to room is through the use of materials that absorb sound by converting sound waves into heat. Adding sound-absorbing material such as fiberglass or mineral-fiber insulation to the cavity of a partition will increase the amount of sound transmission loss. The sound absorbing material should completely fill the cavity but not be compacted or compressed in any way. Any gaps in the wall cavity should be filled.

Sound Reduction Solutions

There are a range of products that will improve the acoustical performance of a wall partition through one or a combination of strategies outlined above.

Acoustically Enhanced Gypsum Board. Mass and damping are important features in a wall's ability to achieve a higher STC. These features are incorporated in acoustically enhanced gypsum board, a new product on the market to reduce sound transmission. This product incorporates increased mass by using gypsum board with a high-density core in an arrangement known as constrained layer damping.

While the introduction of structural damping will increase the amount of sound transmission loss, constrained layer damping, in particular, is more effective. Constrained layer damping can be a three-layer "sandwich" system constructed from attaching a base layer to a damping layer and adding a third constraining layer. In acoustically enhanced gypsum board, constrained-layer damping, a new form of noise reduction, is achieved through the use of a middle layer containing viscoelastic polymer sandwiched between two pieces of enhanced high-density gypsum board. A form of plastic, the viscoelastic polymer absorbs and dissipates noise by converting the vibrational energy of sound waves into negligible heat. Acoustically enhanced gypsum board is appropriate for use as single-layer application or as a component of multi-layered wall assemblies where sound transmission between rooms or dwelling units is a concern. The gypsum board can be mold-resistant, if need be.

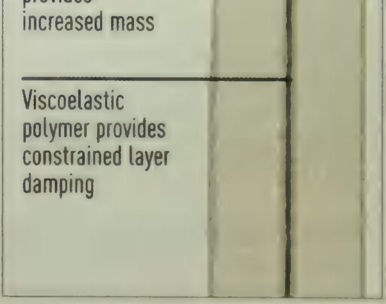
> ***... a new form of noise reduction is achieved through the use of a middle layer containing viscoelastic polymer sandwiched between two pieces of enhanced high-density gypsum board.***

A key advantage of this type of product is that the entire wallboard panel can be produced in a typical 5/8-inch gypsum board for use in the construction of high-STC-rated wall assemblies. Because the solution relies on constrained-layer damping rather than structural isolation, no additional depth is required in the wall cavity, as is the case with many typical sound-reduction solutions. As a result, architects and building owners can benefit from the ability to maximize floor space in each unit.

Because acoustically enhanced gypsum board can be installed like traditional gypsum board, it is able to offer a more reliable and less complicated solution than alternative methods that require clips and channels, and where the possibility of improper installation is a key concern. Another advantage of acoustically enhanced gypsum board is that it is easily finished and can be decorated in the same manner as standard gypsum board.

Fire Resistance Ratings

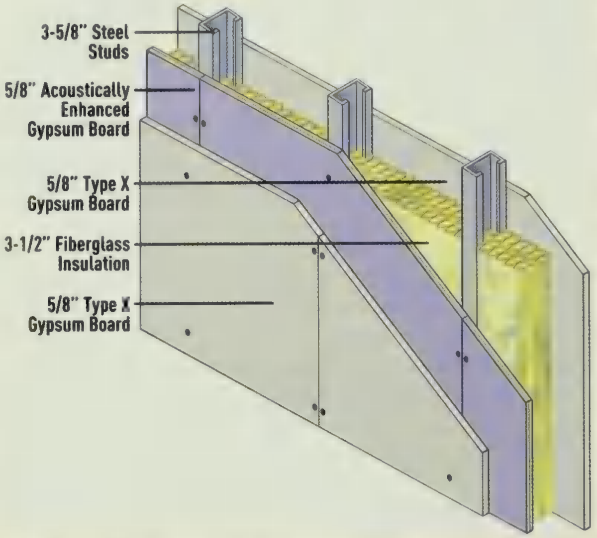
While most acoustically enhanced gypsum board cannot be used as a substitute for 5/8-inch board in a fire-rated assembly, it can be used as an additional layer in all UL fire-rated assemblies without compromising the fire rating. Upgrading such an assembly with an acoustically enhanced product can increase the STC rating by as much as 10 points while maintaining its fire rating. As an option, the acoustically enhanced product may be used as an additional layer on one or both sides of fire-rated wall assemblies. When acoustically enhanced gypsum board is installed between the


How Acoustically Enhanced Gypsum Board Works
High density core provides increased mass
Viscoelastic polymer provides constrained layer damping

FIRE-RATED ACOUSTICALLY ENHANCED GYPSUM BOARD STC 57

Featured Design — UL U465

STC 57 (1-HOUR FIRE-RATED ASSEMBLY — 5-1/2" WALL THICKNESS


3-5/8" Steel Studs
5/8" Acoustically Enhanced Gypsum Board
5/8" Type X Gypsum Board
3-1/2" Fiberglass Insulation
5/8" Type X Gypsum Board

Though it cannot be used as a substitute for 5/8-inch Type X board in a fire-rated assembly, acoustically enhanced gypsum board may be used as an additional layer on one or both sides of fire-rated wall assemblies, such as the U300, U400 and V400 series wall and partition designs described in the Fire Resistance Directory. The profile illustrated is a 1-hour-rated fire wall with a 5 1/2-inch wall thickness. It is applicable as a demising wall between high-rise residential units or hotel rooms, as a corridor wall in these same applications, and as a wall in a commercial office or educational setting with a high sound transmission class (STC). While the building code minimum in many areas is an STC of 50, most users look for increased performance of 55 or more. The wall in the illustration with an STC of 57 provides a 2-point cushion to an already high-STC-rated wall. Fire-rated acoustically enhanced gypsum board comes in STC ratings of up to 61.

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framing and the UL-classified gypsum board, the UL-classified gypsum board layer(s) required for the design should be installed as indicated in the design as to fastener type and spacing, except that the required fastener length should be increased by a minimum of 5/8 inch. For UL-rated walls of the U300, U400 and V400 series designs, the outer layer should be treated with joint compound and paper tape.

Acoustically enhanced products are available in 4-foot-wide panels in lengths of 8 feet, 9 feet, 10 feet and 12 feet, and in a variety of profiles, including nonrated wood- and metal-stud designs and 1-hour-rated metal-stud wall designs with STCs ranging from 57 to 61. Architects should be aware that the use of acoustically enhanced products in actual installations may not produce the same results as were achieved in controlled laboratory conditions.

Resilient Furring Channels. Resilient furring channels are designed for sound control by [illegible] the gypsum board from framing members, thereby eliminating a direct pathway [illegible] of noise and vibrations from adjoining areas. In use since the 1960s, resilient furring channels are inserted between one gypsum layer and the wall frame, and can add as many as five STC points. Acting as a shock absorber, the resilient channel softens vibrations coming from either side of the wall. Not all channels are acoustically effective resilient channels. Hat channels, z-channels, and other lightweight metal furring systems may be similar in appearance, but they are too rigid to offer any acoustical benefit.

Resilient furring channels suffer a long history of high failure rates partly because of their potential for faulty installation. It is important to install them correctly as improper installation can void any acoustical benefit. Resilient channels have a wide flange and a narrow flange, with a slotted element in between. On walls, channels should be mounted perpendicular to the framing with the narrow flange along the bottom. A common mistake is to install the furring channel upside down, which severely reduces and can even negate its soundproofing effect.

When installing gypsum board the screws should be connected to the channels between the studs or joists. Screwing them into the wood behind them will "short circuit" the resilient channels because such an inflexible connection defeats their acoustical benefit. Using screws of incorrect lengths will cause the screws to penetrate into the stud framing, to similarly negative effect. Walls should have a slight flex to them when resilient channels have been properly installed. If it is not possible to flex the wall, the channels may have been shorted out by screws fastened into the framing.

Even if the system is installed properly, the solution can very likely be inadvertently compromised by the building occupants. Even inserting a nail into the wall in order to hang a picture, bookshelf or other item can "short-circuit" the acoustical solution if the nail causes the gypsum board to come in contact with a stud.

Staggered or Double-Studded Walls. A double-studded wall is literally two separate rows of studs, top and bottom plates installed and separated from each other. Staggered or double-studded walls will also structurally decouple, or mechanically separate, the two sides of a wall to make it harder for sounds to pass through. Staggered walls are constructed by using a common plate wider than the two rows of offset studs. Studs are set in a zigzag pattern, with each side of the wall attached to a different set of studs. With no common framing of the walls, sound is not directly transmitted from one wall to another. The drawback of staggered or double-studded walls is that this construction tends to increase labor and material costs. Furthermore, the depth of the required partition takes up valuable floor space.

Sound Isolation Clips. Based on the premise that only isolation can effectively reduce low-frequency noise, sound isolation clips are used together with furring channels to fasten the gypsum board to the wall assembly while simultaneously eliminating the hard connection of the wall substrate to actual structural members. In this way, the wall design provides acoustical decoupling. Clips attach easily to wood, steel, or concrete and can add up to 20 STC points to most walls. Here again, relatively higher labor and material costs for wall construction are a disadvantage. In addition, the large number of parts and pieces required for a sound isolation clip system make for a complicated installation with significant potential for error. ■

This article continues online at
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See Quiz on the Next Page

To receive AIA/CES credit, you are required to read the additional online text, which can be found at ***http://construction.com/CE/articles/0707national-1.asp***
The quiz questions below include information from this online reading.

Program title: **"Market Trends Drive the Need for Effective Sound Solutions" (07/07, page 163).** AIA/CES Credit: This article will earn you one AIA/CES LU hour of health, safety, and welfare credit. (Valid for credit through July 2009). **Directions:** Refer to the Learning Objectives for this program. Select one answer for each question in the exam and fill in the box by the appropriate letter. A minimum score of 80% is required to earn credit. **To take this test online, go to construction.com/CE/**

LEARNING OBJECTIVES

After reading this article, you should be able to:

- Discuss trends driving the need for wall partitions that can reduce sound transmission
- Explain key acoustical terms and concepts
- Specify the appropriate sound control system for your projects

Questions

1. The chief noise complaint cited by residents of multifamily housing was:
☐ **a.** airplanes..
☐ **b.** neighbors' conversations.
☐ **c.** passing trucks.
☐ **d.** loud music.

2. The level of airborne sound is measured by decibels.
☐ **a.** True.
☐ **b.** False

3. Which is considered an acceptable goal for sound insulation?
☐ **a.** STC 55
☐ **b.** 60 dB
☐ **c.** 125 Hz
☐ **d.** HUD Grade 2 building

4. Which helps to decrease sound transmission through a wall?
☐ **a.** decreasing the wall cavity
☐ **b.** removing fiberglass
☐ **c.** increasing mass
☐ **d.** using wood studs

5. One new product in the field of sound isolation is:
☐ **a.** resilient furring channels.
☐ **b.** acoustically enhanced gypsum board.
☐ **c.** sound clips.
☐ **d.** wood fiber sound board.

6. Resilient furring channels achieve sound control by:
☐ **a.** separating the gypsum wallboard from the framing members.
☐ **b.** adding mass.
☐ **c.** increasing structural damping.
☐ **d.** adding absorptive materials.

7. A drawback of sound isolation clips is:
☐ **a.** adding too much mass.
☐ **b.** the increased number of parts, complicated installation.
☐ **c.** low performance.
☐ **d.** that too much floor space is required.

8. Sound-reducing wall partitions often do not live up to their STC ratings because of:
☐ **a.** poor design.
☐ **b.** inferior materials.
☐ **c.** faulty installation.
☐ **d.** unrealistic goals.

9. Installation of acoustically enhanced gypsum board is:
☐ **a.** very difficult.
☐ **b.** best over an insulating blanket over the framing members.
☐ **c.** challenging because it can lead to "short circuiting."
☐ **d.** similar to the installation of standard gypsum board.

10. In laboratory testing, "flanking paths" that ease sound transmission are eliminated.
☐ **a.** True
☐ **b.** False

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Residential

These houses convey as much about porosity and openness as they do about protection and shelter

BRIEFS

Retailers IKEA and MUJI bring housing to the masses through their latest ventures—in residential development. IKEA's division BoKlok (Swedish for "smart living") has already built 3,500 homes across Scandinavia and is now coming to the U.K. MUJI (taken from a Japanese phrase meaning "No Brand Quality Good") carries a line of prefab houses that start at just $115,000. Adding to 387 outlets in 15 countries, MUJI expands to the U.S. this fall. Go to www.boklok.com; www.muji.net/eng/.

Condo hotels get hot in the resort and hospitality real estate market. Club Med has announced a new development plan that includes the company's first-ever condominium resort development. Club Med Buzios, located on a peninsula east of Rio famed for being the "St. Tropez of Brazil," will be the group's first condominium resort development, with 300 units sold to individual buyers. Find our more at www.clubmed.com.

House_n, a research group at MIT, explores how new technologies, materials, and strategies for design can facilitate evolving places that respond to the complexities of life. The PlaceLab, a residential condominium in Cambridge, Massachusetts, is a unique "living laboratory" that has been constructed to explore these ideas. It is designed to study people and their patterns of interaction with new technologies and home environments. Read more about the project at architecture.mit.edu/house_n/.

Jean Prouvé's La Maison Tropicale sold on June 5 for $4.97 million at Christie's International in New York. It is the third house to be sold at auction as an art object. The small aluminum-and-steel home, built in 1951, was conceived by Prouvé as a utopian prototype for prefabricated housing.

Green building branches out to home construction. The percentage of new homes built with ecofriendly features will rise from 2 percent in 2005 to as much as 10 percent by 2010, according to the *Residential Green Building SmartMarket Report*, published by McGraw-Hill Construction with support from the National Association of Home Builders. Those interested can download the report at www.construction.com/greensource/reports.asp. *Danielle Rago*

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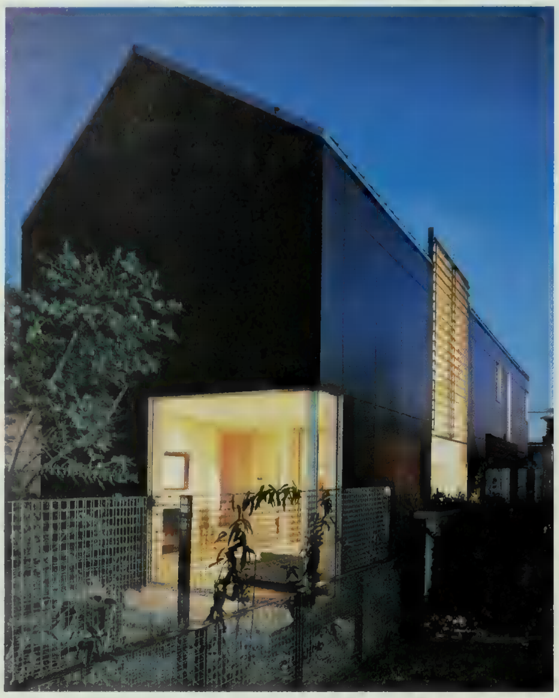
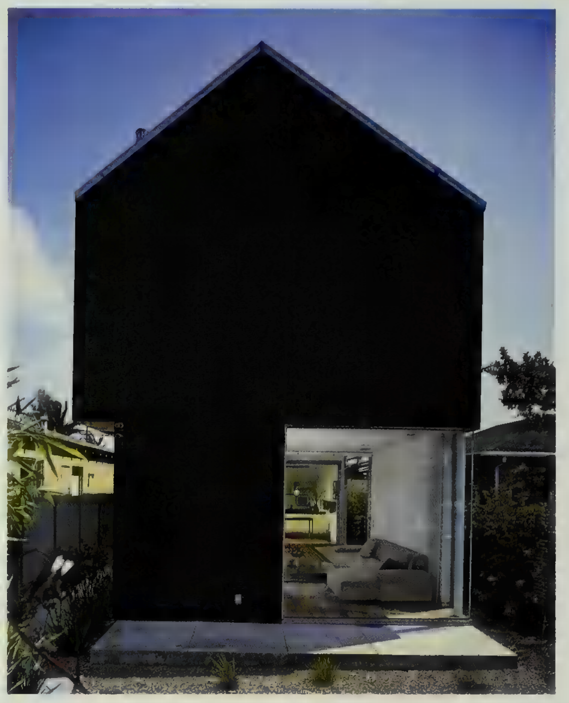
While realizing the programmatic needs of their clients, the architects in this section also explored the interface between inside and outside. The four houses shown here take unique approaches to this boundary, each controlling the quality and quantity of daylight and air in a different way.

The tight suburban site of the Coconut House prompted the architect to carve out an interior courtyard, which allows abundant light inside, provides a private outdoor living room, and facilitates cross ventilation. At Les Abouts, a house in Quebec, Pierre Thibault used the shade from nearby trees and full-height operable awning windows to temper the light coming in from generous fenestration.

A wall of metal screens in the Low-Country Residence protect and shade a southwestern wall of glass while allowing breezes to enter. In the open position, the screens permit daylight to flood in. Similarly, large folding doors and shutters on the Inverted Guest House in Lake George, New York, control the amount of light and air that can penetrate inside. *Jane F. Kolleeny*





The living room window (above two) allows views to the rear of the house.

lee+mundwiler architects' **Coconut House** tweaks iconic forms to deliver views without losing privacy

By Russell Fortmeyer

In Los Angeles, a city known for its dearth of public spaces, architects have expressed the issues of privacy and transparency in the home in often-unusual ways, typically motivated by a perceived break with architectural tradition. The optimistic Case Study architects of the 1950s and 1960s gave us the glass house on the hill, exposed to the entire city. A less optimistic generation of the 1970s and 1980s designed either compounds, hidden behind walls, or faux ruins—houses constructed of common, tough materials that appear outwardly hostile toward the public domain—responses to the city's worsening urban situation.

Santa Monica–based lee + mundwiler architects responded to this local legacy in a 2005 project, the Coconut House (winner of a 2006 AIA Housing Award [RECORD, July 2006, page 206], and photographed here by the legendary Julius Shulman), which neatly explores the conceptual dichotomy of open and closed, public and private domains. "We like to provide privacy, but we didn't want to overdo it, either," says Stephan Mundwiler, AIA, who designed the house with his partner, Cara Lee. "We [illegible] the client to sit on the street, which led us to design an [illegible] courtyard."

[illegible] two-story, 1,800-square-foot house, dubbed Coconut [illegible] exterior shell and white interior, is located in the den- [illegible] neighborhood of Marina del Rey. The residence appears, in Mundwiler's terms, like a child's drawing of a house—in section, it's a simple, 18-foot-wide rectangle topped by a gable and then extruded back 64 feet to the rear of the relatively narrow, 25-by-100-foot site. From the street, a large window for the living room and a narrow second-floor overhang for the side entrance appear as voids, laying waste to any preconceptions of the house as business-as-usual.

The wood-framed house's inventiveness emerges in its plan, where the architects subtracted a two-story volume between the front living room and the rear kitchen and dining room to form the interior courtyard. This space doubles as an additional dining room, revealingly framed by large, folding glass doors on the first floor and by windows on the second floor.

This transparent gesture allows great cross ventilation and uninterrupted views through the house—between rooms and also out to a busy street—but appears rather secluded when looking into the house

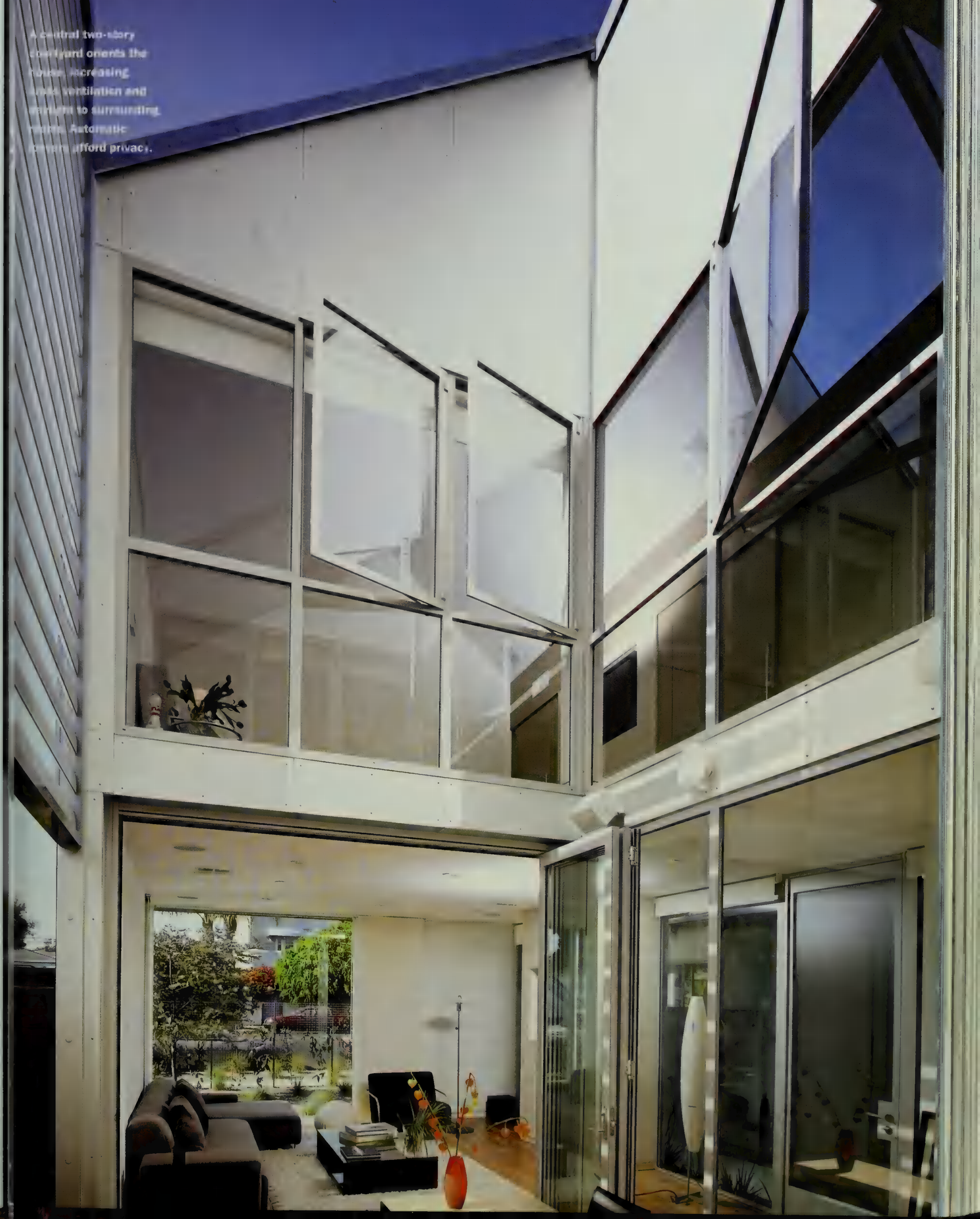
Project: *Coconut House, Los Angeles, California*

Architects: *lee + mundwiler architects—Stephan Mundwiler, AIA, principal architect; Cara Lee, project designer*

Engineer: *CTW Engineers—Christian Williamson*

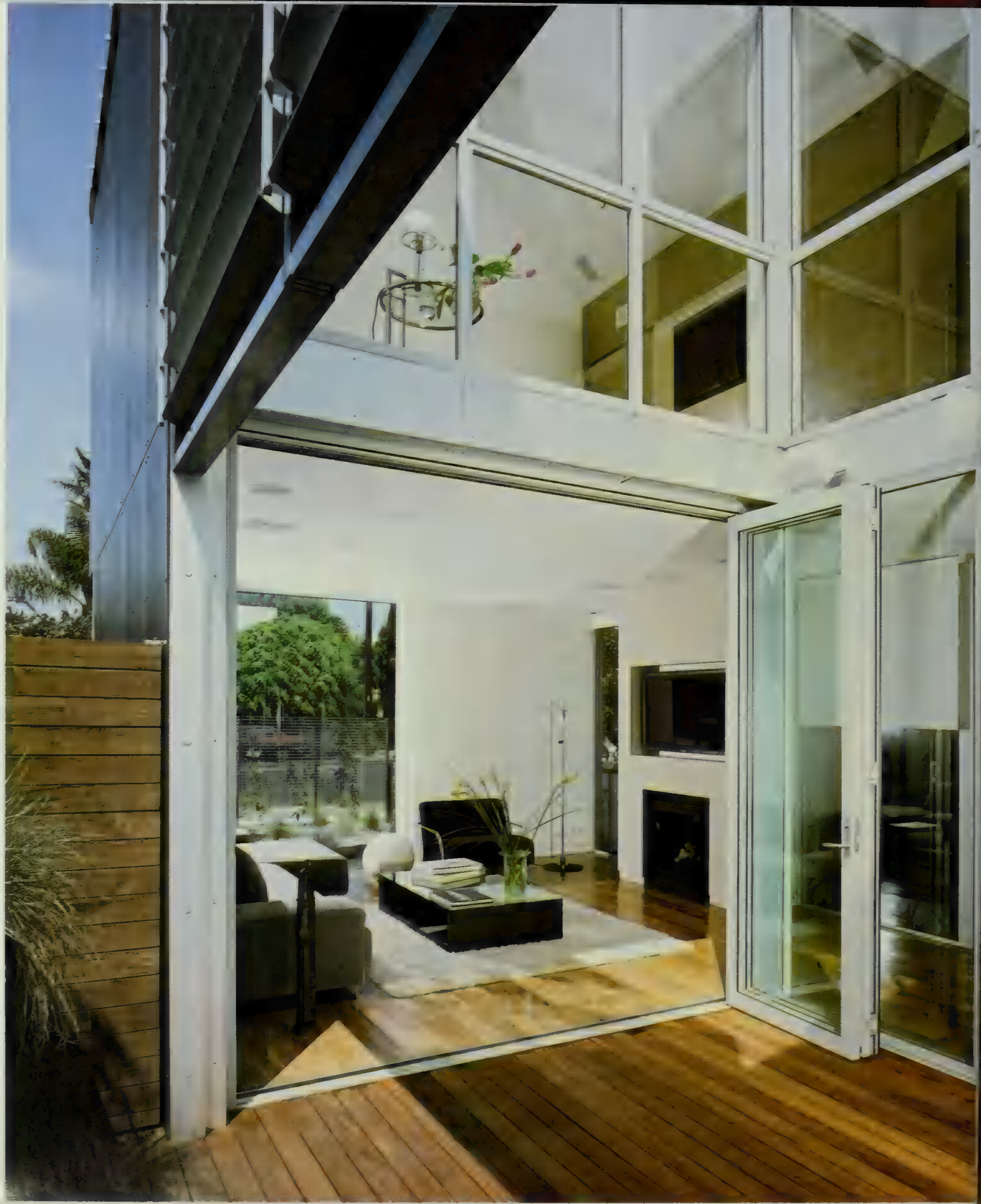
General contractor: *Niagara Construction*

Landscape architects: *lee + mundwiler architects*

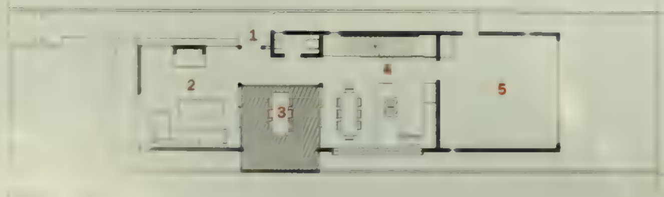


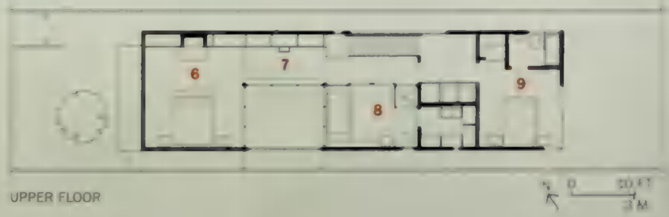
A central two-story courtyard orients the house, increasing cross ventilation and daylight to surrounding rooms. Automatic louvers afford privacy.

Aside from the folding glass doors surrounding the courtyard, the interior walnut floor planks line up with exterior decking to reinforce the indoor/outdoor quality of the house (right).



1. *Entry*
2. *Living room*
3. *Courtyard*
4. *Dining/kitchen*
5. *Garage*
6. *Master bedroom*
7. *Office*
8. *Bathroom/closet*
9. *Bedroom*





UPPER FLOOR

Frosted glass hides a pantry (above) and reveals the stair. Regardless of time of day, sunlight pervades the two-story courtyard through east-facing skylights in the master bedroom office (above right) and through west-facing operable louvers and a ground-floor garden-wall opening (right).

from the sidewalk. The architects achieved this effect, without sacrificing privacy, in part by enclosing the second-story opening of the courtyard with a scrim of operable louvers. The client can automatically control her views, as well as sunlight and breezes.

Unlike the client's previous, conventional single-story bungalow on the site—which she elected to tear down—the new house affords views through large windows flooded with Southern California sunshine. White walls and a creamy limestone on the living room fireplace and in the upstairs master bath intensify the effect of brightness, even with coastal fog. The kitchen and dining room share a low, slot window to the narrow side yard. A frosted-glass enclosure hides both a makeshift kitchen pantry and the staircase to the master and guest bedrooms on the second floor. Another slot window in the stair looks across adjacent rooftops.

Whereas the guest bedroom is simple and functional, the master suite combines a bathroom, office, and bedroom into a loftlike retreat distinguished by vaulted ceilings and glass partitions. Opposite the courtyard volume, a skylight floods the walk-through office space with light. The glass doors to the bathroom sit within a glass wall that also becomes one side of the shower.

Although the Coconut House was built for a single professional, its restrained formal gestures and volumetric clarity redress the American urge for bigness in ways square footage alone cannot. The house's simple material palette—walnut floors; coffee-colored, fiber-core wood panels on the exterior; a standing-seam metal roof; ironwood for the courtyard deck; and stainless steel in the kitchen—further harks back to those Case Study days. It's a backward glance much in keeping with other recent L.A. residential architecture, which overlooks the fussy details and junk materials of the 1970s and '80s. And then it makes sense that Shulman, the magician of midcentury fabulousness, would want to photograph this house. ■

ONLINE: To see a complete list of sources, and to rate this project, go to ***architecturalrecord.com/residential/***. Submit your residential project to ***construction.com/community/gallerylist.aspx***.

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Exterior cladding: *Prodema (phenolic resin-bonded cellulose fiber-core panels)*

Interior glass partitions: *Allwood Design*

Skylights: *Sun Valley Skylights*

Flooring: *Walnut hardwood*

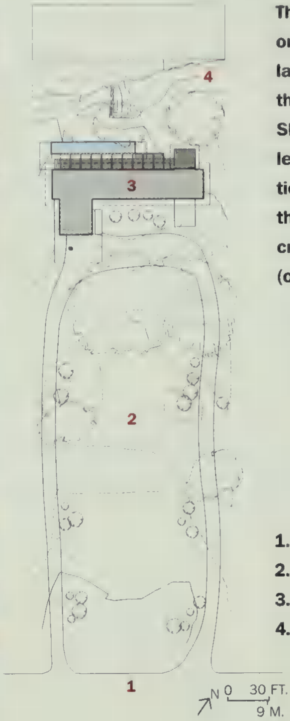
Downlights: *Louis Poulsen*

Hardware: *Technolumen/Bauhaus*

Plumbing fixtures: *Boffi*

Louvers: *Louvertec*

Kitchen hood, master bed, dining table: *lee + mundwiler architects*



The house looks out onto an expansive front lawn (top left) and, at the back, a lap pool and Shem Creek (bottom left). In the closed position, the screens, with the roof's overhang, create a shaded porch (opposite).

1. *Main access*
2. *Lawn*
3. *Residence*
4. *Shem Creek*

Living the high life in the **Low-Country Residence**

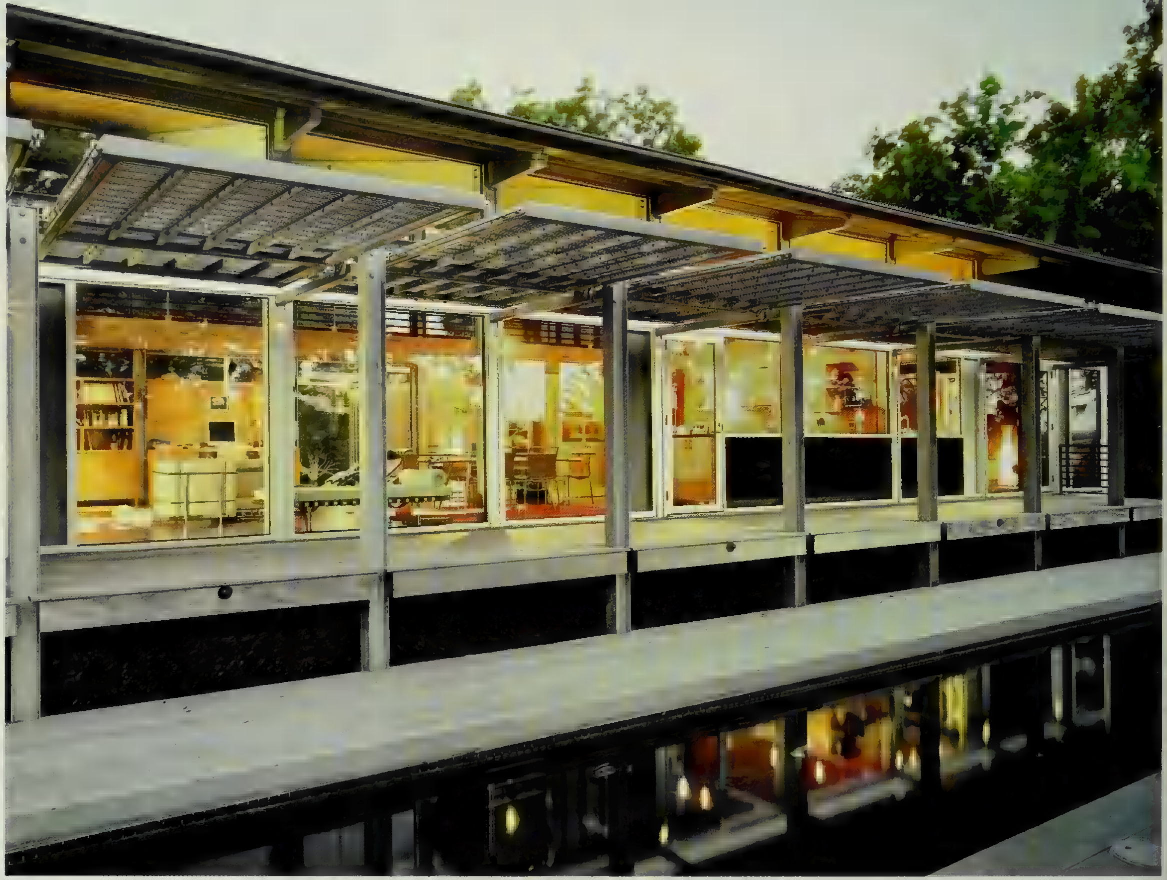
By Beth Broome

Down a long, U-shaped gravel drive and surrounded by palm trees and Spanish moss–shrouded live oaks, the Low-Country Residence opens onto Shem Creek in the Charleston, South Carolina, suburb of Mount Pleasant. On a cloudless spring afternoon, as a pelican coasts on the breeze and pleasure boats cruise along the creek to the nearby marina, it's hard to imagine the harsh turn the weather can take here. With that in mind, Raleigh, North Carolina–based architect Frank Harmon, FAIA, has designed a house that takes nature's good with its bad by inviting the sublime light and views in while also protecting against the elements. "The house feels remarkably open," says Harmon, "but at the same time, it is a place of refuge and shelter."

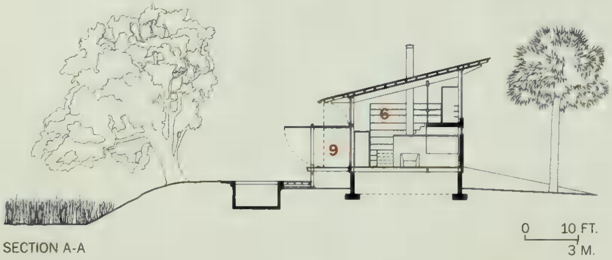
The client, a doctor, wanted a home with a large living area that he could share with his son, and ample work space for restoring old cars and boats. An avid bird-watcher and fisherman, he envisioned a house of glass that would bring him closer to the salt marsh and the variety of wildlife it attracts.

Project: *Low-Country Residence, Mount Pleasant, South Carolina*
Architect: *Frank Harmon Architect—Frank Harmon, FAIA, principal; [illegible] project manager*
[illegible] (structural); Orbit Engineering (mechanical); S&ME Geotechnical (geotechnical)
Landscape: *Judy Harmon*
General contractor: *Design Build Corporation*

PHOTOGRAPHY: © RICHARD LEO JOHNSON/ATLANTIC ARCHIVES



1. *Entry*
2. *Bedroom*
3. *Bath*
4. *Kitchen*
5. *Dining*
6. *Living*
7. *Screened porch*
8. *Garage/workshop*
9. *Deck*



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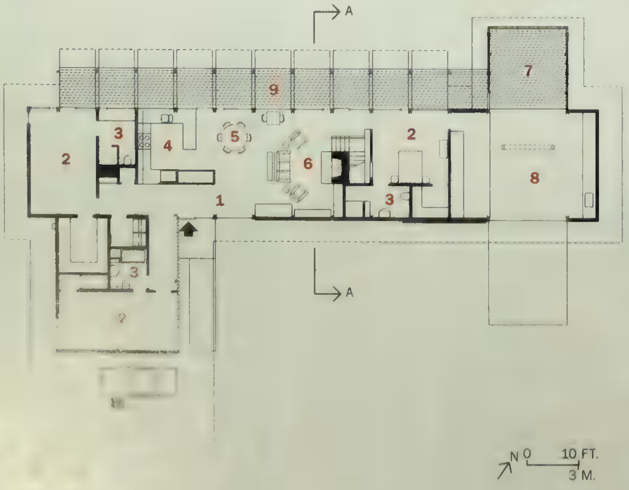
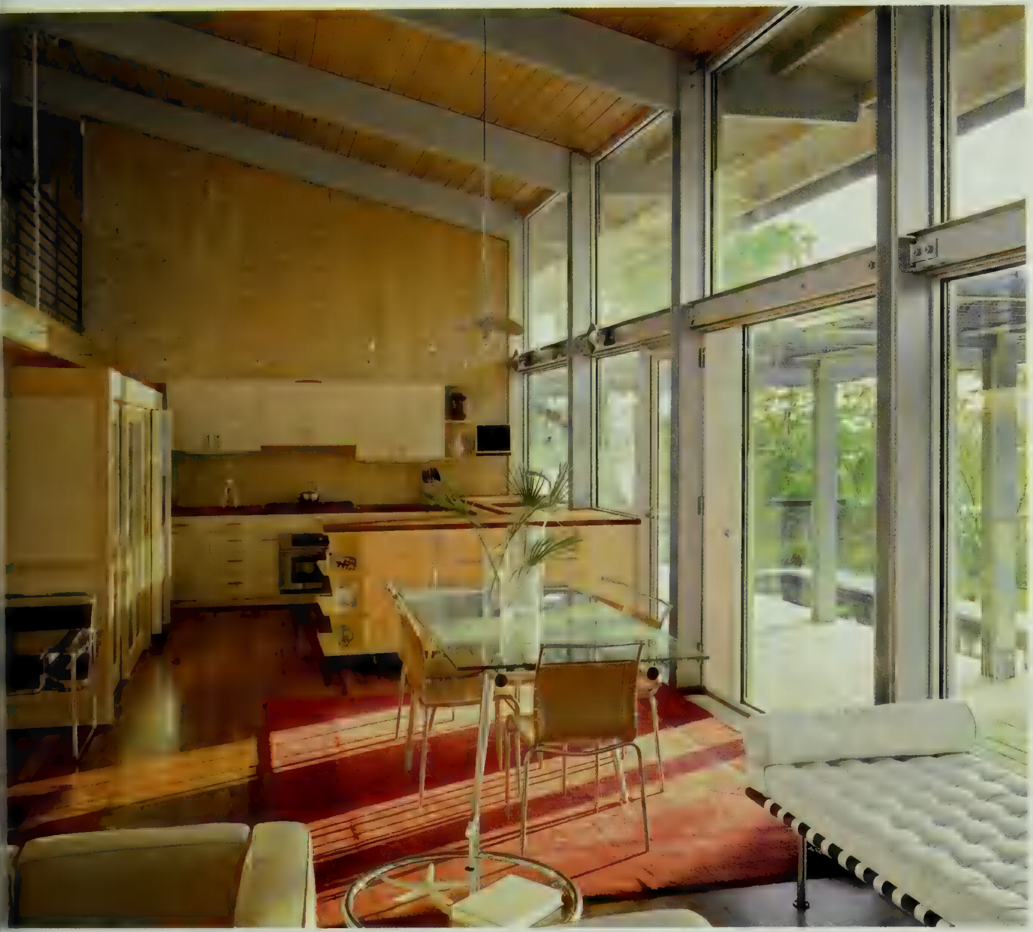


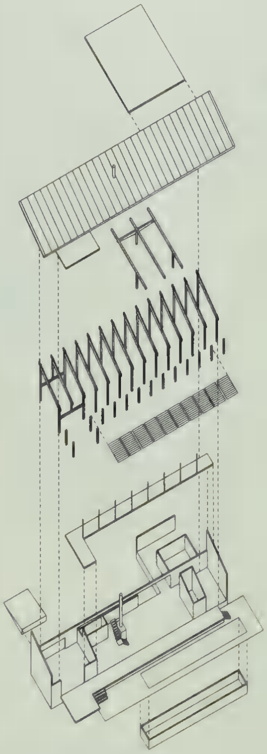
With the screens in the open position, a kind of colonnade is formed that runs parallel to both the lap pool and the creek beyond. Doors and narrow operable windows on the house's front and back provide natural ventilation.

After investigating many locations on the 1.5-acre property, the client and architect decided to build on the obvious one—the creek-facing footprint of the small ranch house that had previously occupied the site and that they dismantled and donated to Habitat for Humanity. "On all of my projects, the site is more important than the client," says Harmon. "The site has been there longer than they have and will be there longer than they will." Maximizing the stunning view was a temptation too difficult to resist. But like most good things in life, it came with a price: On the southwest elevation, extensive glazing would turn the house into an oven as the hot southern sun moved across the sky. And there were other natural forces to contend with—notably, the plot sits squarely in a hurricane zone and, perhaps surprisingly, an earthquake zone as well.

Long and narrow, the Low-Country Residence has its gaze focused on the creek and the lap pool that runs parallel to it. The simple, single-story design includes an ample, double-height living area flanked by bedrooms on either side, and a guest bedroom in the back. A stair leads up to a balcony suspended from the roof beams that spans the length of the house, giving access to utility and storage areas and offering a bird's-eye view down into the living space, the large garage, and even



In the afternoon, the sun streams in through the open screens, giving life to the honey-colored interior. The shifts in light and the view out to Shem Creek can also be appreciated from the heights of a balcony (top left in photo).



EXPLODED AXONOMETRIC

the bedrooms. The house's steel-and-laminated-southern-yellow-pine framing rests on matt footings, addressing high wind and seismic concerns, and a single-plane, standing-seam roof with broad overhangs provides shading and channels rain water into a cistern used for irrigating the landscape.

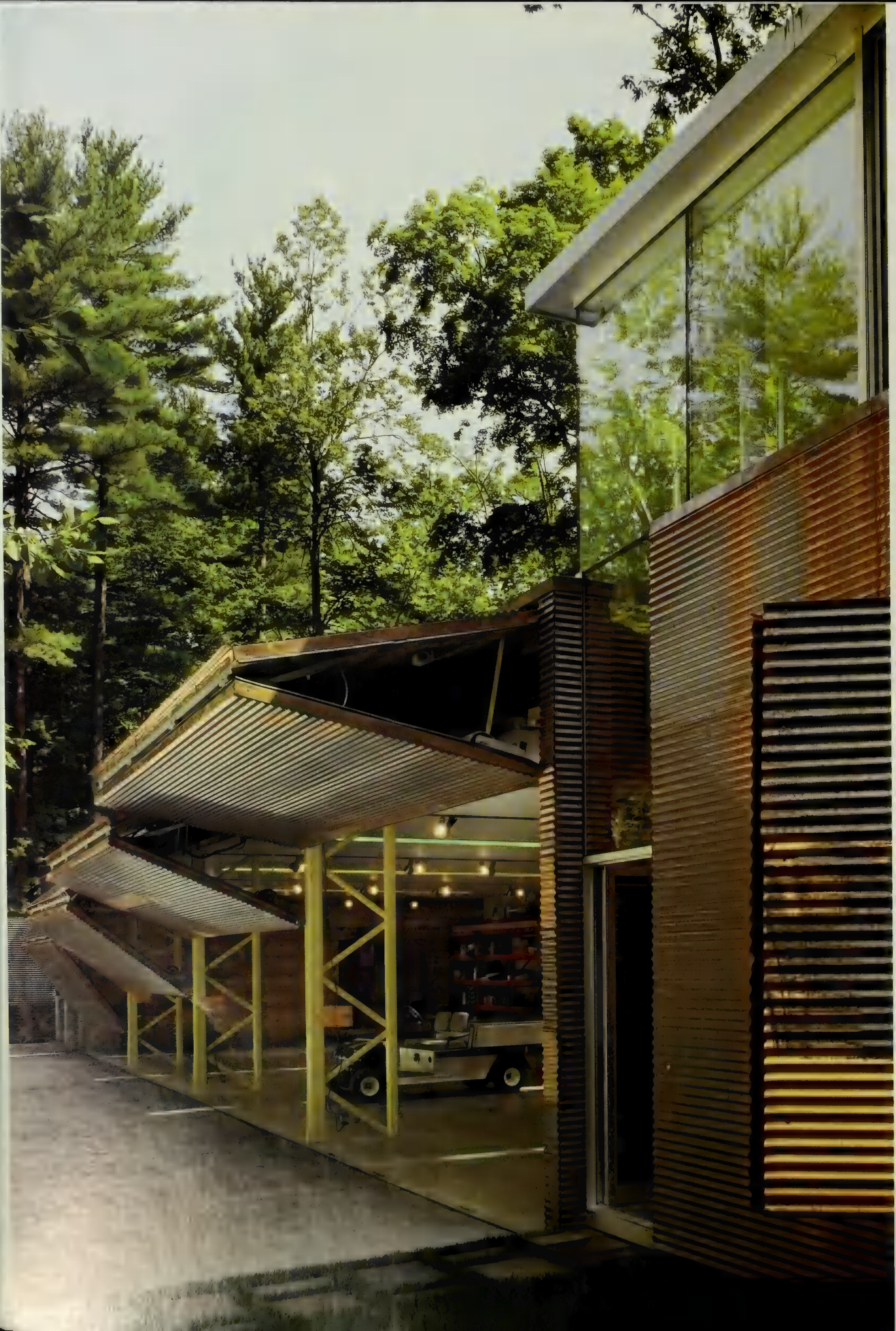
To moderate summer heat gain through the extensive southwest-facing glazing, Harmon designed a shading system that consists of 10 800-pound screens: hand-fabricated frames encasing perforated-metal panels typically used in industrial decking. In its raised position, the system opens the house onto the landscape and allows daylight to flood inside. In its lowered position, it creates a protected exterior porch along the length of the facade, shading the residence while allowing cooling breezes to enter through doors and narrow operable windows that appear again on the front of the building. Significantly, the system also protects the glass wall against hurricane-force gales and the debris they hurl. An engineering feat fabricated by Christian Karkow, a Raleigh, North Carolina–based sculptor and metal fabricator, the screens, made of hot-dip galvanized steel to withstand the ravages of the corrosive salt air, can be effortlessly swung open by one person.

Though large for just one full-time resident, the 2,900-square-foot house does not feel big. Thoughtful planning has resulted in a collection of spaces that are well lived in. Behind the street-facing facade, which could be considered somewhat imposing next to its Colonial- and Ranch-style neighbors, the interior features an abundance of local southern yellow pine—on the walls, on the ceiling, in the trim—a move that is in sync with the house's other forthright qualities. Along the banks of Shem Creek, Harmon has created a dwelling that introduces its own version of southern hospitality and is quite at home in the beauty of the South Carolina coastal region known as the Low Country. ■

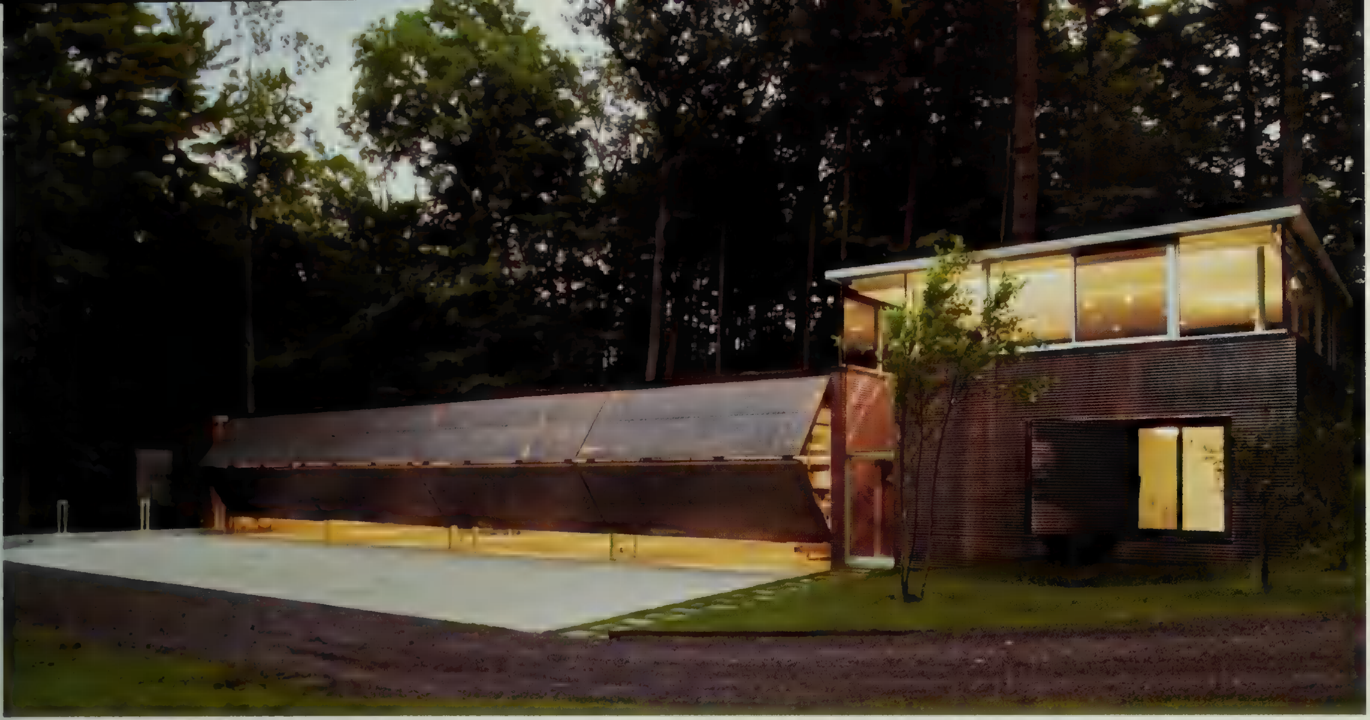
ONLINE: To view additional images, see a complete list of sources, and to rate this project, go to ***architecturalrecord.com/residential/***. Submit your residential project to ***construction.com/community/gallerylist.aspx***.

Sources

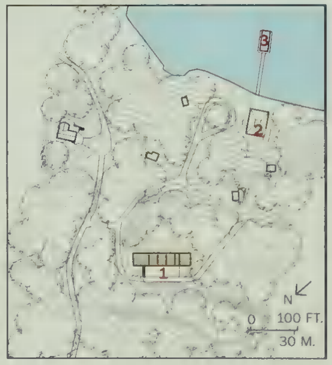
Metal/glass curtain wall: *Kawneer*
Custom screens: *Christian Karkow*
Standing-seam roof: *Galvalume*
Built-up roofing: *Bray*
Windows and exterior doors: *Kawneer*
Plastic glazing: *Polygal*
Upswinging doors: *Cornell*
Cabinets: *Raleighwood Cabinets*
Paints and stains: *Cabot*
Copper gutters: *Classic Gutters*



Airplane-hangar doo on the garage (left) and bifold shutters on bedroom window (opposite) allow the clients and their guests to adjust the building's relationsh to its surroundings. As he does with most of his projects Gluck had his firm's construction divisio AR/AC Architectural Construction Servic act as the general contractor.



Peter Gluck builds an open-and-shut case for inventive design with the **Inverted Guest House**



1. *Inverted Guest House*
2. *Main house*
3. *Boat house*

By Clifford A. Pearson

I wanted to build a barn," says Richard Yulman, the client for the Inverted Guest House in Lake George, New York. "Just a country barn where we could park cars and put stuff in the winter." What started as a simple shed kind of project, though, became a 5,600-square-foot building that features a pair of two-bedroom guest apartments on either side of an eight-car garage. With its rugged-yet-elegant copper cladding and flat roofs, it looks like no barn. But its industrial materials capture the utilitarian spirit of rural buildings, and its large, folding doors and shutters connect it to the light and views of its wooded site.

The guest house/garage is the third in an ongoing series of projects that New York City–based architect Peter Gluck has designed for Yulman's 17-acre estate on Lake George. About nine years ago, Yulman, whose primary residence is in Florida, hired Gluck to renovate the property's main house as a summer retreat for his family. Then a few years later, he commissioned him to design a small boathouse on the lake. By the time he asked Gluck for "a barn," he and his architect had developed a

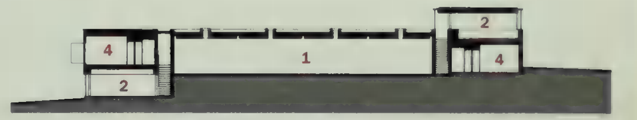
Project: *Inverted Guest House, Lake George, N.Y.*

Architect: *Peter L. Gluck and Partners—Peter Gluck, principal; Jennifer Bloom Leone, Natalie Wigginton, Thomas Zoli, project team*

Engineer: *Robert Silman Associates (structural)*

Interior designer: *Holmes Newman and Associates*

General contractor: *AR/CS Architectural Construction Services*



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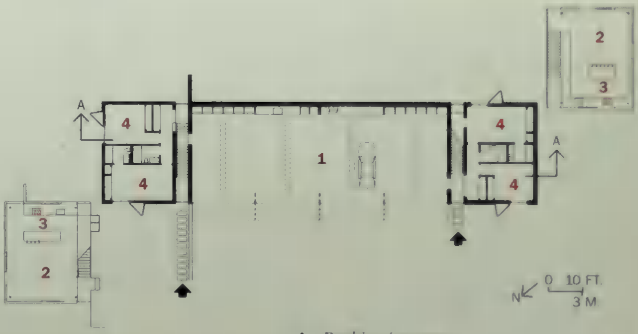
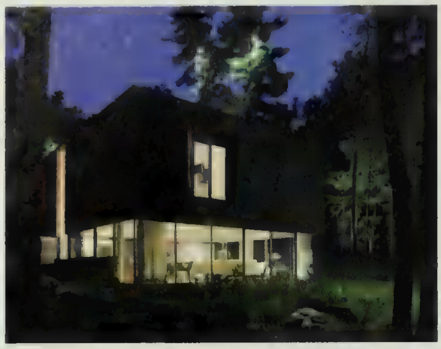
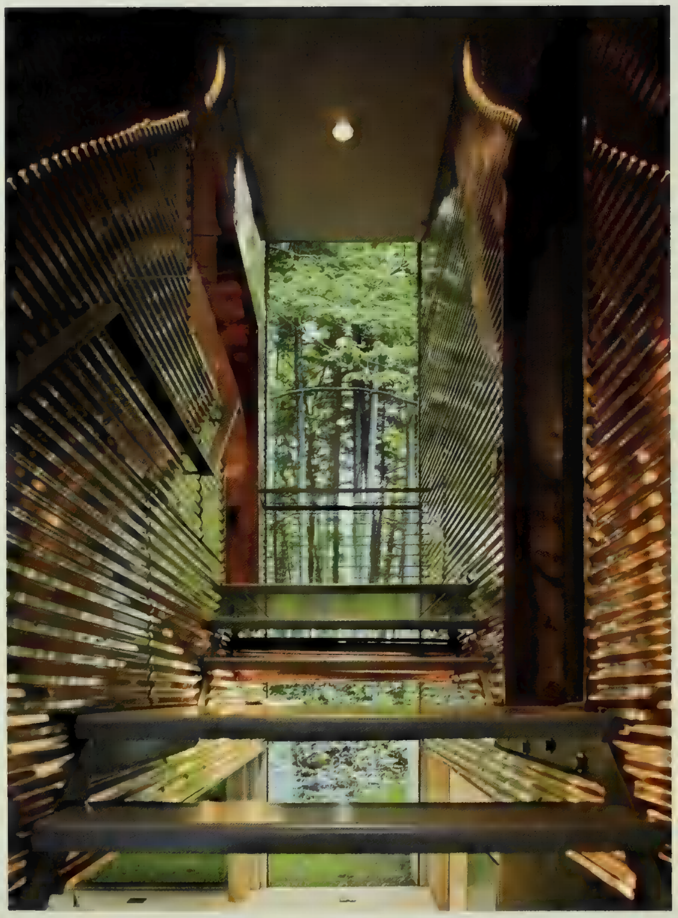
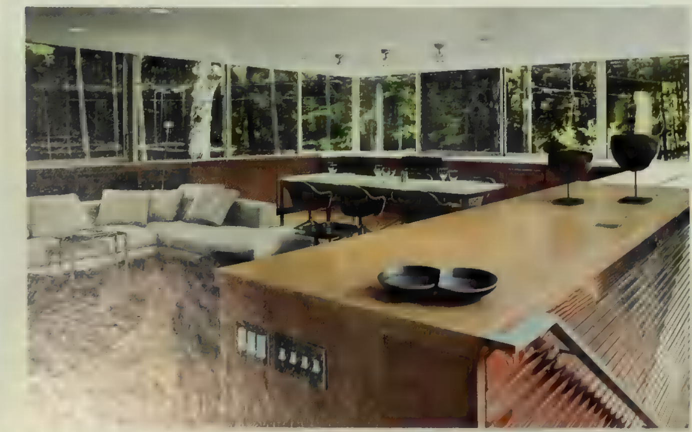


1. *Parking/storage*
2. *Living*
3. *Kitchen/dining*
4. *Bedroom*



Gluck designed the guest units as inverted twins with a transparent living/dining space on the lower floor of one (left) and the top of the other (bottom). Each unit has its own set of stairs (below).





close relationship. So when Gluck proposed expanding the program to include quarters for guests and building it on an almost forgotten part of the property behind a small ridge, Yulman trusted him. Although Yulman had traditional tastes in architecture when he first bought the lakeside property and its early-20th-century house, he developed a more contemporary sensibility while working with Gluck. For the guest house/garage, he was ready for a Modern design.

Gluck selected the site because it offered a degree of separation from the main house, ensuring privacy for guests and keeping cars and equipment out of sight. Taking advantage of a 10-foot drop across the length of the lot, he designed a long bar building where one end pops up above the ground floor and the other slides down. The guest apartment that pops up has a glass-enclosed living/dining/kitchen space on the upper level and a pair of copper-clad bedrooms below, while its twin on the other side of the garage follows an inverted scheme.

Simple contrasts supply most of the design impact, creating an effective back-and-forth between opaque and transparent materials, open and closed elements, rooms with big views and those with small, framed ones. To set apart the guest quarters, Gluck inserted a vertical glass slot between each unit and the garage, creating a transparent reveal where guests enter and find metal stairs going either up or down to the main living space. Corrugated-copper walls in these entry/stair halls bring the exterior's dominant material inside and create a lovely, warm glow when the sun hits them. Interior finishes are as simple as those on the outside: mostly Douglas fir, white drywall, white artificial-stone counters, and a few touches of copper. As with most of Gluck's projects, his firm's construction division, AR/CS Architectural Construction Services, acted as general contractor, which reduced costs, says the architect.

Some guests might think that the unit with the upper-level living room offers the best place to hang out because it enjoys views to the main house and the lake. And, indeed, it has a graceful, light-filled quality to it. But the other unit has its own charms, offering a living/dining space that feels as if it is in the woods. Eat here and you think you're at a picnic (without having to worry about the rain ruining the fun). While the bedroom floors are wrapped in copper and read as opaque layers, each bedroom has a window with a large, bifold shutter that can be opened or closed by hand from the inside. Instead of big views and plenty of daylight, these windows establish a more intimate relationship with the outdoors. Sometimes less is more.

Four airplane-hangar doors on the eight-car garage act as a different kind of bifold device. Stabilized by vertical steel trusses (the only steel elements in an otherwise engineered-lumber-frame building), the garage doors operate individually and can stop in different positions. With all four open all the way, they can serve as a canopy—useful for when the clients empty the garage of its cars and convert it into an events space. You might not think of partying in a garage, but Gluck's manipulation of openness and enclosure, light and shadow make this possible here. ■

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Wood windows: *Kolbe & Kolbe*

Aluminum window sliders: *Arcadia*

Aluminum skylights in garage: *Custom by Peter Gluck and Partners*

Bifold garage doors: *Scheiss*

Locksets: *Modric and FSB*

Cabinet hardware: *Hafële*

Countertops: *Corian*

Douglas-fir cabinetwork: *Custom by Peter Gluck and Partners*

Downlights: *Juno and Lightolier*

Exterior lights: *BK Lighting*

Light controls: *Lutron*

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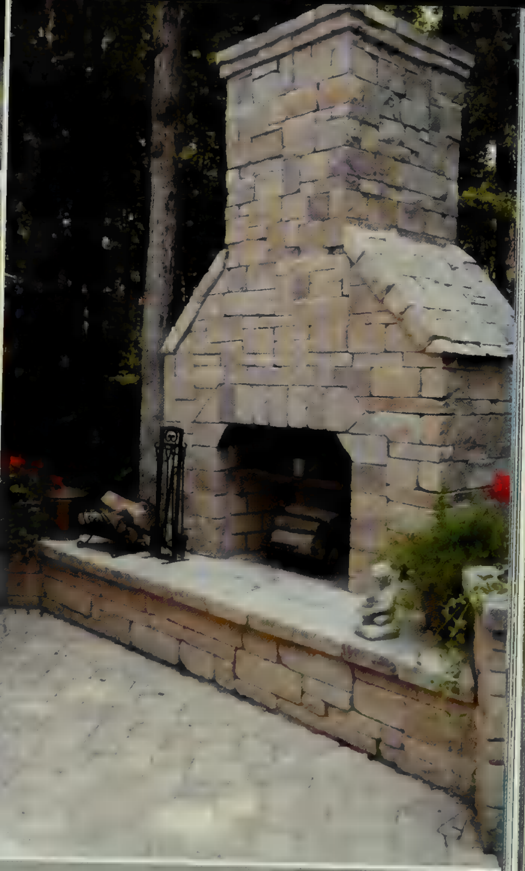

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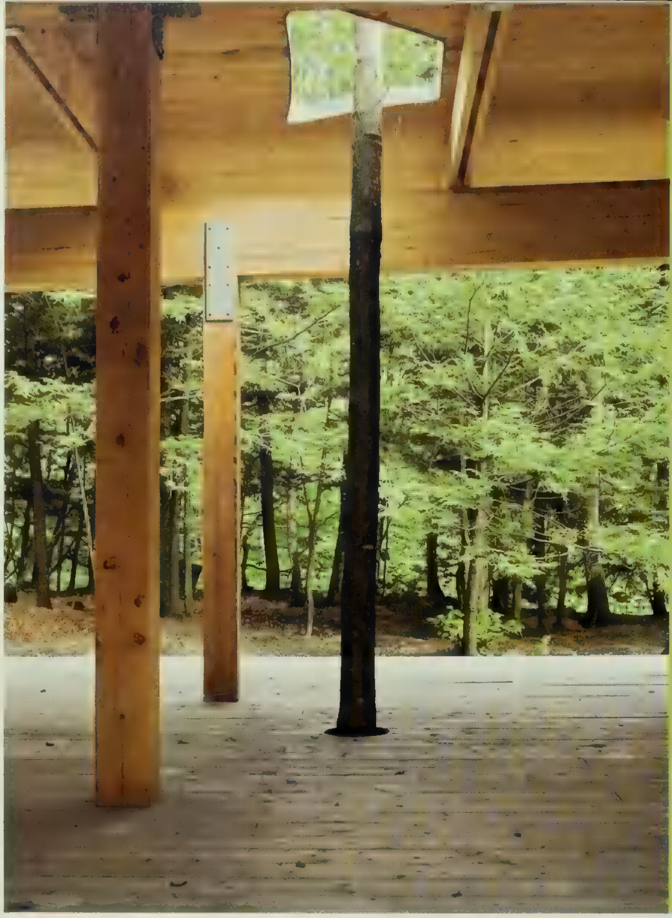
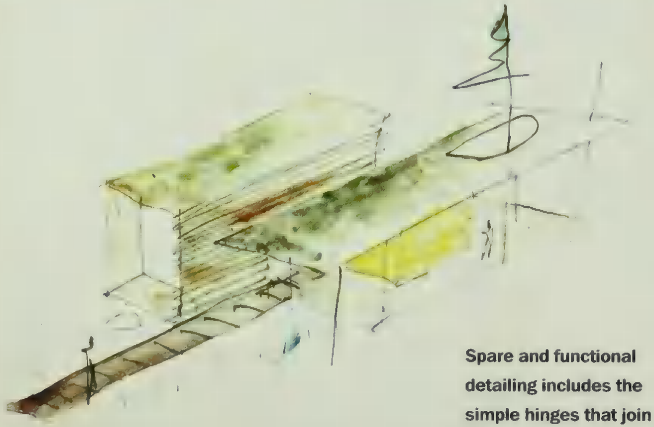


Pierre Thibault's **Les Abouts House** sits quietly in a wooded meadow

By Jane F. Kolleeny



Spare and functional detailing includes the simple hinges that join the structural columns (top). A sketch of the house shows its two primary volumes surrounded by a deck, where one small tree peeks out of a hole made just for that.

Glaciers sculpted the area north of the Great Lakes between Quebec City and Montreal into the immensely fertile St. Lawrence Lowlands. Today, large farms spread out in the open expanses, and small townships like Saint-Edmond-de-Grantham, Quebec, dot the landscape. It is in this village that architect Pierre Thibault of Quebec City crafted Les Abouts, a house designed to invite the outside in. "We wanted to feel nature as closely as possible. We wanted a house open and integrated with the outdoors, with a lot of light," explained one of the two owners. The owners sought a country home that would fit like a glove in the site—in harmony with, rather than impinging on, its surroundings.

This 2,500-square-foot residence, built in white birch with post-and-beam construction, sits on a wooded site with a small river running through it. Over time, the river's meandering has created a pocket of land. The architect, who labored for two years to find the perfect placement for the house, located Les Abouts in this cul-de-sac, making it possible to view the river from most locations inside. Surrounded on three sides by water, the house hovers like a wooden raft adrift on a sea of soft ostrich ferns, with towering birch, hemlock, cedar, maple, and basswood trees rising around it. The name *Les Abouts*, from the French verb for "to end at or in," refers to the location of this 4-acre parcel of land at the terminus of a 20-acre agricultural plot farmed by one of the owner's families.

From the time the owners engaged the architect in 2002, it would take two years to develop a final design. During this period,

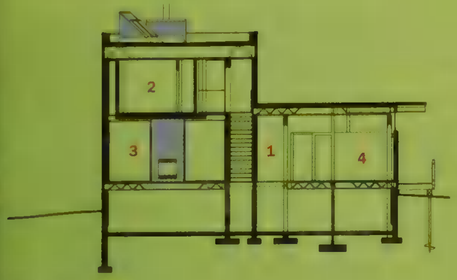
---

Project: *Les Abouts House, Saint-Edmond-de-Grantham, Quebec, Canada*

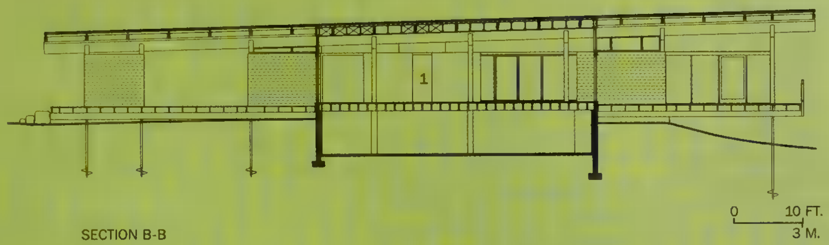
Architect: *Atelier Pierre Thibault—Pierre Thibault, principal; Charles Ferland, André Limoges, project team*

Structural engineer: *Gaétan Samson*

General contractor: *Réjean Desilets*

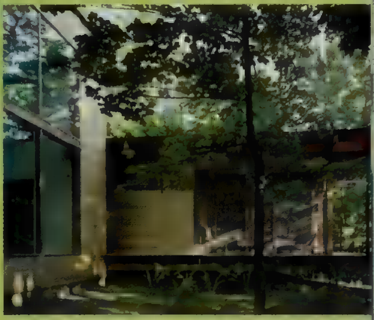


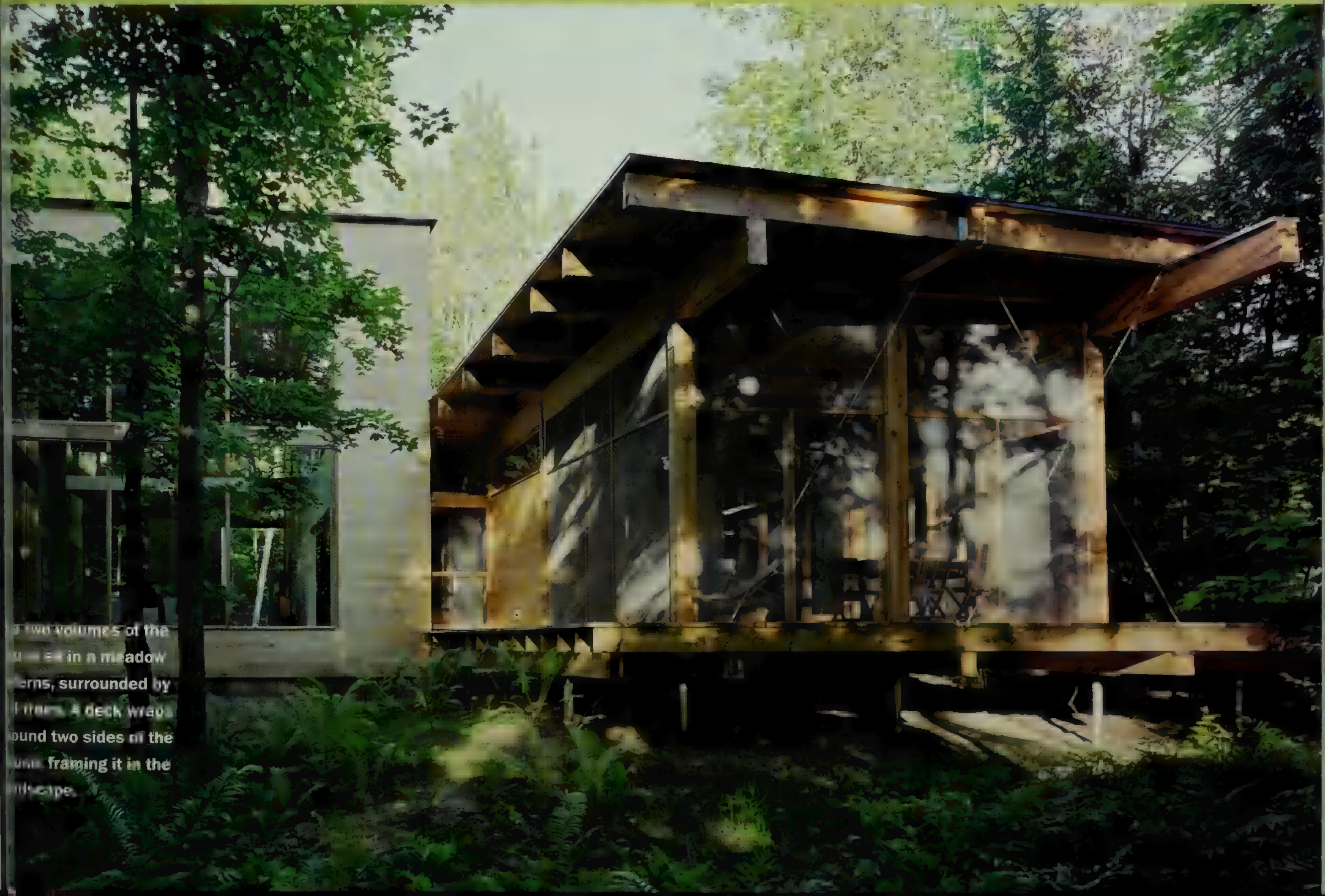
SECTION A-A



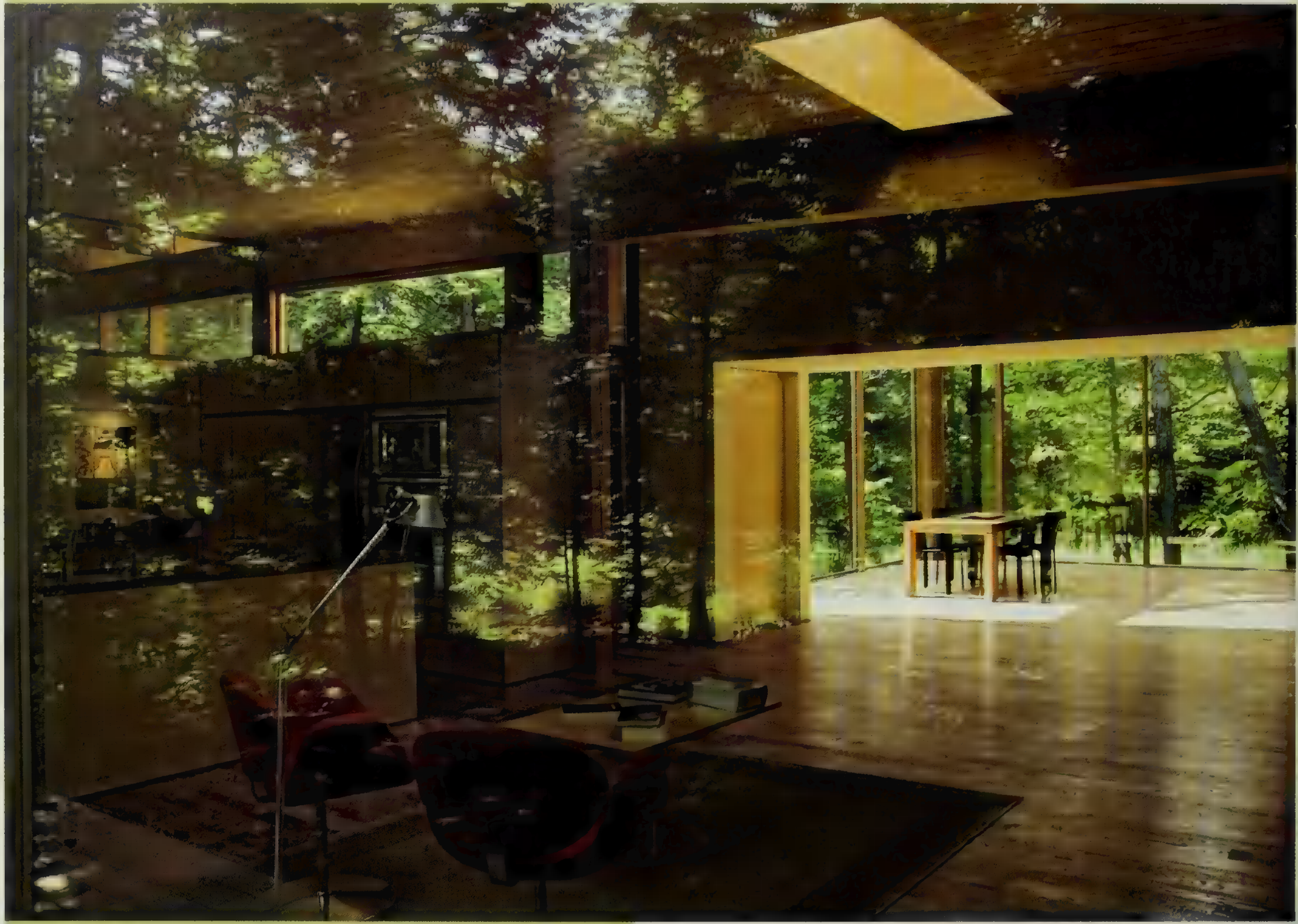
SECTION B-B

1. *Entrance hall*
2. *Library/office*
3. *Living*
4. *Master bedroom*





two volumes of the [illegible] in a meadow erns, surrounded by trees. A deck wraps ound two sides of the [illegible], framing it in the [illegible]scape.



The sitting room, dining room, and kitchen merge into one another (above), creating a great party space. Upstairs, a glass-floored corridor enhances the effect of transparency (left).

Thibault visited the site frequently to sketch ideas and understand the setting, its moods changing with the seasons. This deliberative but intuitive design process, allowing him to explore ideas through the medium of sketching, is the architect's usual way of working. (Over the course of his career, he has created more than 10,000 drawings.)

The owners wanted their country home to serve as "an art gallery in the wilderness," says Thibault, to house their collection of contemporary art. In addition, the owners wanted a flexible house that provided "open spaces for gathering with family and friends and a more private part for us," they said. Responding to the flat plane of the river, the architect sculpted a one-story horizontal volume that contains the private areas of the house, including the master bedroom, kitchen, and two baths. Juxtaposed to this, a vertical volume echoing the mature trees on the site accommodates the living/dining room. A cube-shaped second floor hovers over the living room, suspended from above by steel rods imbedded in its walls. It contains a library/study with two full walls of built-in shelves visible over the dining room, and a guest bedroom and bath beyond it. The living room achieves a sense of intimacy by being tucked underneath this volume. Next to it, the two-story dining room mimes the verticality of the trees outside, its full-height windows allowing the patterns of

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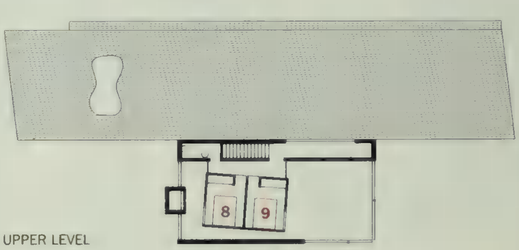
The double-height walls of the dining room (right) contrast with the living room, which is defined by the second-story volume above it (below). Full-height awning windows open from the bottom (below right).

nature to interact with the modern interior.

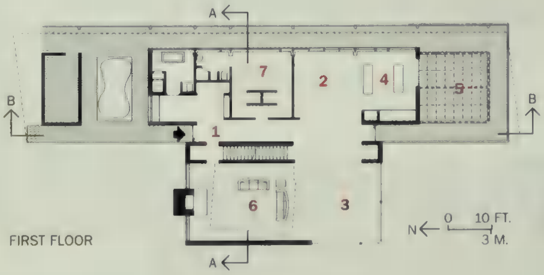
Thibault uses these two contrasting spatial arrangements to comment on nature and culture. "I wanted to express the directions: a pronounced horizontality that reflects the river's alignment and the dynamics of water flowing from one end of the house to the other, and an extreme verticality that expresses the trees and the thick layer of vegetation that isolate the house from civilization."

A large, gray pine veranda wraps around two sides of the house—the east-facing entry side, and the 100-foot-long south-facing side, with a screened-in porch at the west end, just behind the kitchen. Thibault kept the wide expanse of the deck unadorned, except for an opening that allows one small tree to grow from underneath. Seen from the perspective of the surrounding woods, the pavilionlike volume of the house, extended by the deck, floats between the floor line resting in the ferns and the roofline in the trees. "By moving structural elements inside, we were able to erect a free and extremely light curtain wall, accentuating the sensation of floating and the panoramic framing of the landscape," explains Thibault—an ingenious deviation from the A-frame shape of the traditional Quebec chalet. ■

1. *Entrance hall*
2. *Sitting room*
3. *Dining*
4. *Kitchen*
5. *Screened porch*
6. *Living*
7. *Master bedroom*
8. *Guest bedroom*
9. *Library/office*



UPPER LEVEL



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Sources

Roof: *Soprema*

Wooden windows and doors: *Michel Légaré*

Cabinets: *Innovaplan*

Lighting: *Compagnie d'éclairage Union*

Armchairs: *Pierre Paulin/ Avant-scène*

Dining set: *Molteni*

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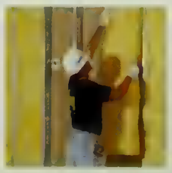

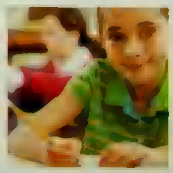

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Kitchen & Bath Portfolio

Whether they **optimized a challenging footprint** or had plenty of elbow room to spare, the design teams behind this year's Portfolio were universally successful in increasing **the presence of light and transparency** in these kitchens and baths for a range of clientele. *Rita Catinella Orrell*

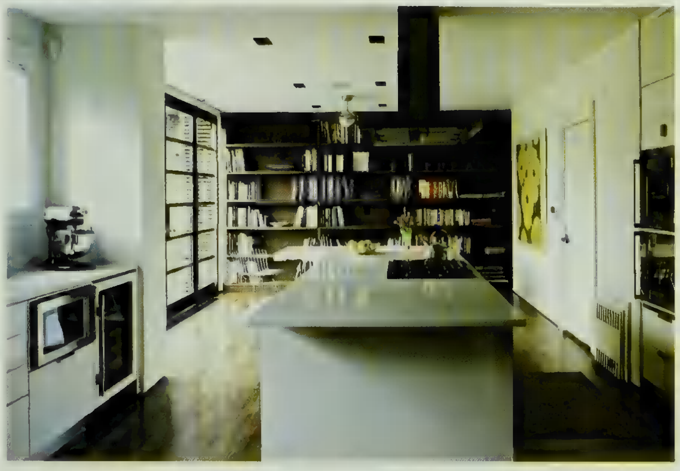
A kitchen and master bath break down boundaries in a 1930s New Jersey home

Elizabeth and Mordechai Kubany's house in Maplewood, New Jersey, was built in the 1930s, and like many homes in that area, it was closed off to the outdoors. Markus Dochantschi, principal of studioMDA, knew the Kubanys socially (Elizabeth works in public relations for architects, and is a former RECORD editor) and noticed the design flaw at a barbecue in the couple's backyard. "The house had absolutely no connection to the outside," Dochantschi said, "and that becomes most apparent when you entertain outside." So when he was hired to add a new kitchen and master suite to the house, Dochantschi decided not just to give the couple and their two children a new kitchen, but "a connector to the outside world."

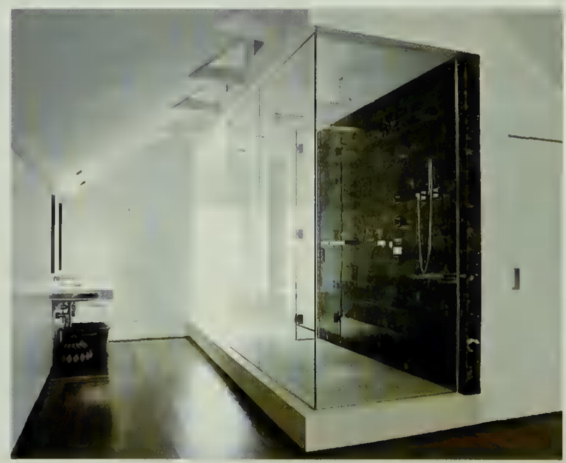
The new kitchen, a starkly Modern wood-and-glass addition to the traditional brick exterior of the original house, juts into the backyard and brings light and views of nature into the informal dining area. Because the clients keep kosher, studioMDA looked at usage diagrams for the kitchen to determine where to put two sinks and two countertops. What the diagrams showed, according to Dochantschi, was "that having a kosher kitchen is really how a kitchen should be able to function, regardless." The firm divided the room between a clinically white kitchen space at one end and the dining area next to the glass doors in the extension. Dochantschi chose to set bookshelves into the wall in the dining area to lend it a more domestic feel.

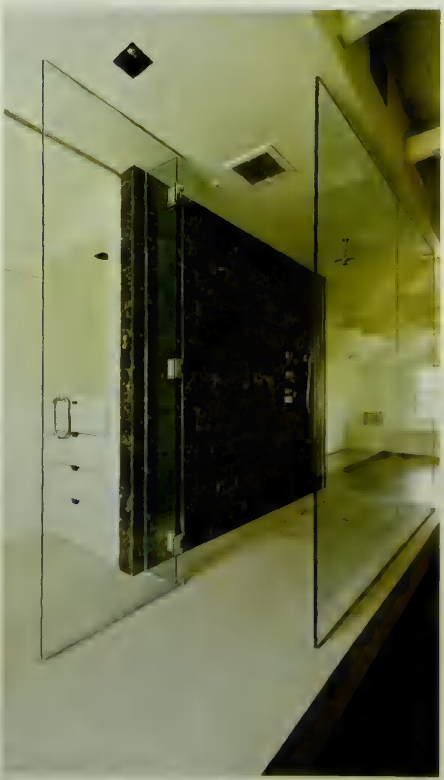
The equally Modern new master suite is separated from the kitchen by almost the entire bulk of the original house in what was previously an unfinished attic. It is just as open as the kitchen, but much less public. In fact, there is no separation at all between the sleeping area and the master bath. Dochantschi says that the shower sits "brazenly" in the middle of the room.

Though physically separated, the two rooms are connected by aesthetics—both contrast sleek white surfaces with earthier dark browns—and they're connected, too, by the way their uses have changed. "When these houses were built, priorities were not given to kitchens or bathrooms or master bedrooms," Dochantschi adds. "Today, the kitchen has been discovered as having a completely different function in family life." *Kevin Lerner*



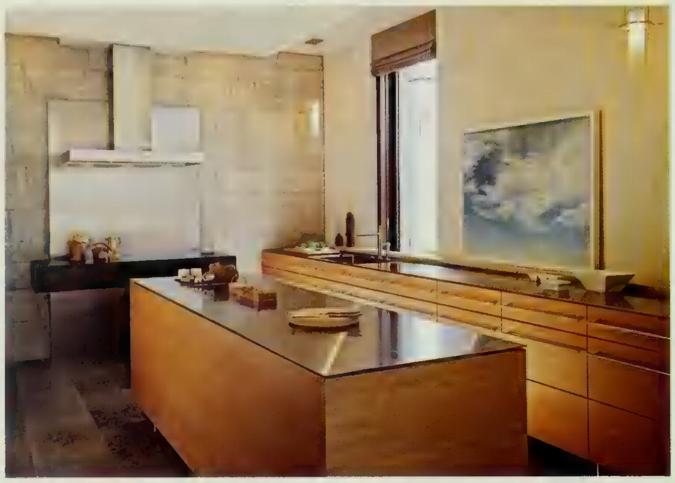
The kitchen addition (above) juts into the backyard and brings light into the informal dining area. The master suite (below two) was built into an unfinished attic space, and features a glass-enclosed shower situated "brazenly" in the middle of the room.



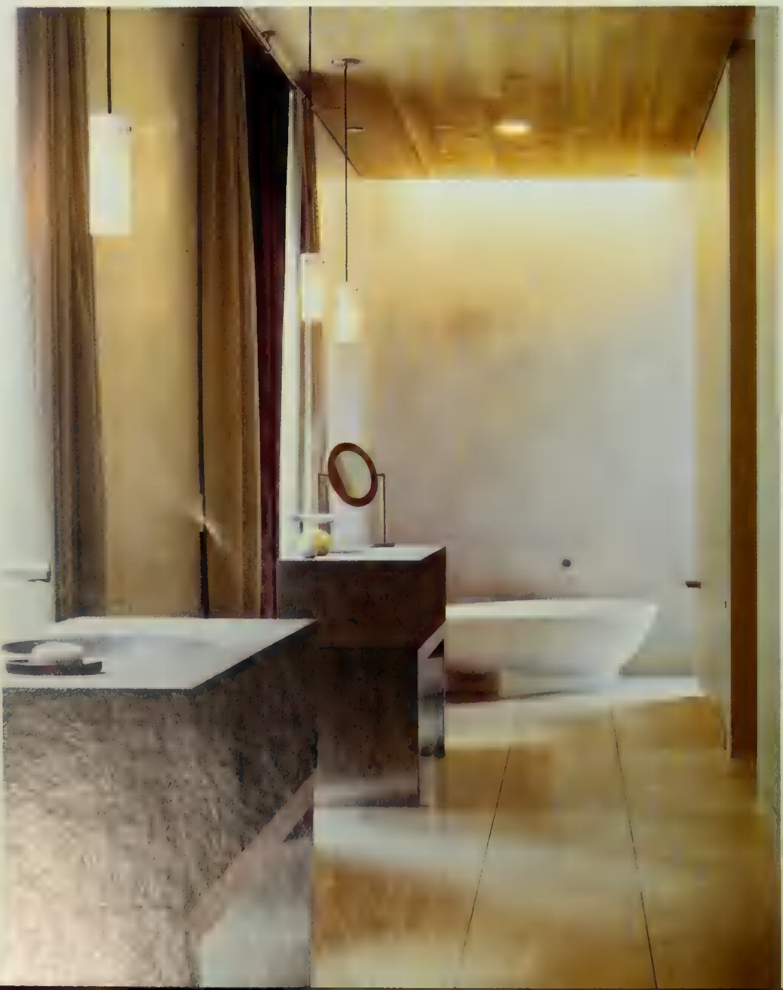


Architect: *studioMDA*
General contractor: *4 Star Construction*
Sources: *Kitchen: Dornbracht (faucets); Bliss Nor-Am (windows, doors); Alkco, Modular (lighting); Gaggenau (cook top, convection ovens, exhaust hood); Bosch (microwave, dishwasher); Sub-Zero (fridges); Bath: Duravit (toilet); Hansgrohe (shower); Sugetsune, E.R. Butler (hardware)*

A monastic kitchen and bath draw from the Northern California landscape



Limestone and white oak warm up the formal, geometric kitchen (above). The Italian limestone floor in the master bath recalls a nearby hillside (below).



Every year, tilling removes local basalt and softens the soil in the vineyards of Sonoma County, California, to maximize the coming growing season's grape yield. This annual ritual informs aidlin darling design's scheme for a residence at the base of Mount Sonoma, and of the modern, yet monastic, kitchen and bathrooms within.

Because the basalt forms many of the low walls that creep throughout the 60-acre working cabernet vineyard surrounding the house (see page 82), "We explored the idea of tactile mapping, using materials as a way of codifying spaces and one's relationship to the ground," says David Darling, AIA, a partner in the firm with Joshua Aidlin, AIA.

In that vein, the kitchen terminates in a sandstone wall, and Portuguese limestone covers its floor. White oak cabinets with stainless-steel counters stand on cylindrical legs to give the impression of freestanding furniture. Moreover, the division of the kitchen into formal and service zones harks back to old English estates and French hotels: Whereas an adjacent scullery includes two dishwashers, an appliance garage, and prep spaces, the formal kitchen features party-ready geometries, artwork instead of upper cabinets, and views to the vineyard and the valley beyond.

The formal kitchen area includes hidden opportunities for a more workaday treatment, too. Sections of a 4-inch-deep limestone backsplash flip up to reveal electrical outlets. The kitchen island houses a concealed oven and oak-clad warming drawers. And along the stone wall, a blue, T-shaped metal door slides open for cooktop access.

The architects' tactile mapping technique yielded more stone for the master bath, which opens to a courtyard sculpture garden. The Italian limestone floor reminds the clients of the nearby hillside, and the whitewashed cedar ceiling is a continuation from their master bedroom. Here, too, the wash basins are treated like furniture, with tremendous Chinese granite slabs, reclaimed from buildings in the Yangtze River Valley, fabricated into lavatories and mounted on stainless-steel bases.

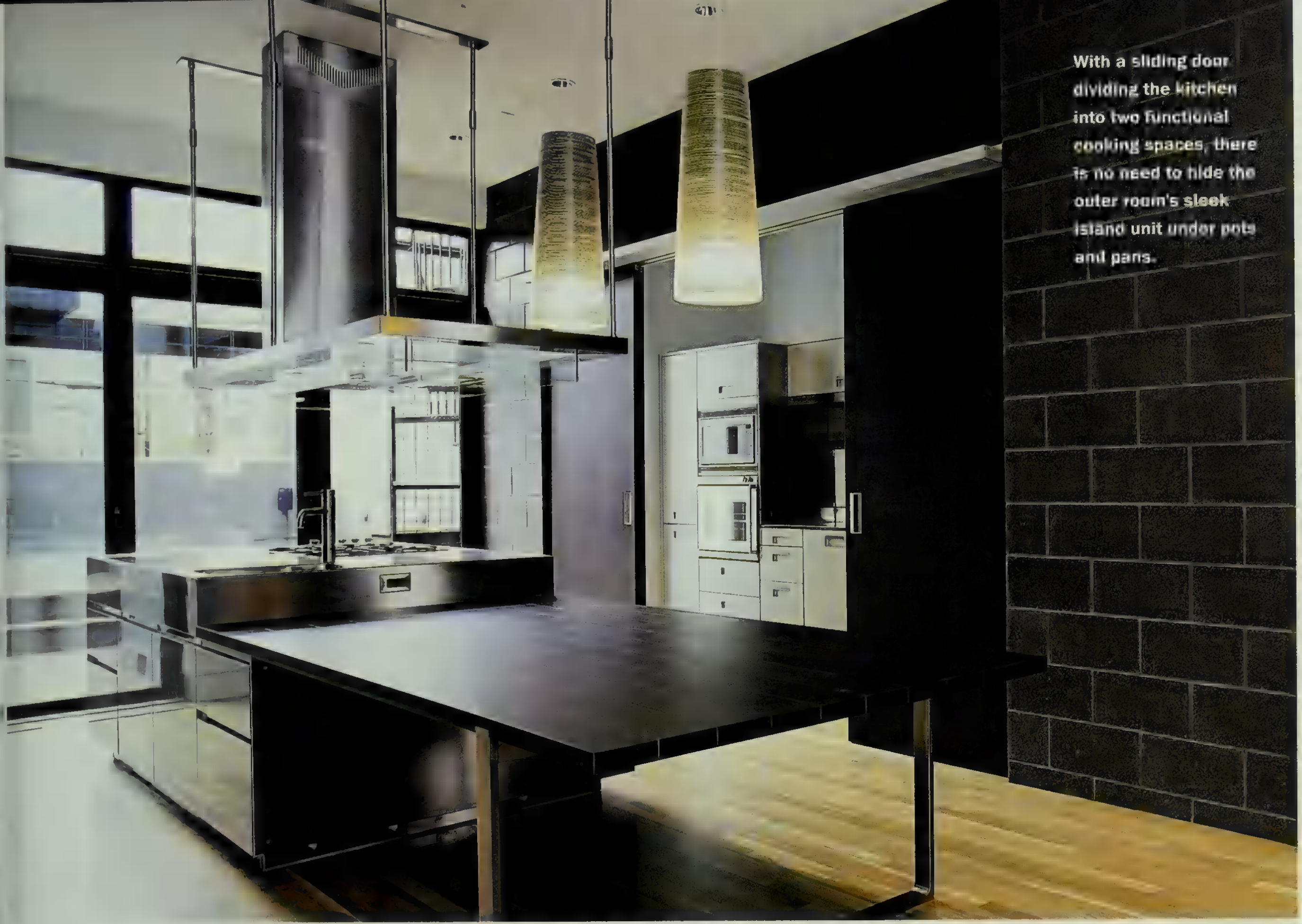
The bathroom's two basins are placed widely apart in the corridor-like room, which culminates in a sculptural Agape tub bathed in daylight from a nearby window. This procession through the space, punctuated by different tasks and moments of light and dark, transforms the necessary task of cleaning into an experience of romance and introspection.

David Sokol

Architect: *aidlin darling design*

General contractor: *Cello and Maudru Construction*

Sources: *Kitchen: Sub-Zero (fridge, freezer); U-Line (wine chiller); Gaggenau (cooktop, ovens, vent hood, dishwasher); Thermador (microwave, warming drawers); Franke (garbage disposal, kitchen faucet); Sand Studios, Bone Simple, Lucifer (lighting); Berlin Food Company (countertops); Zeluck (windows, doors); Bath: Lefroy Brooks (faucet, tub filler); Agape (tub); Zeluck (doors, windows); FSB (hardware); Kurt Versen (recessed downlights); Rhodes Architectural Stone (stone basin)*


With a sliding door dividing the kitchen into two functional cooking spaces, there is no need to hide the outer room's sleek island unit under pots and pans.

A divided kitchen space in Chicago keeps the mess hidden behind closed doors

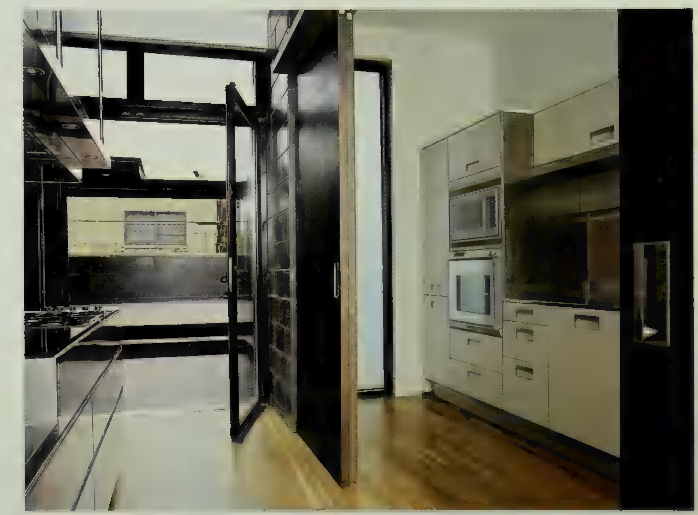
When a Chicago housing developer approached Studio Dwell Architects to design a home in the Bucktown neighborhood for himself—rather than a spec house—the firm knew that it would be dealing with a client who knew what he wanted.

Mark Peters, AIA, the principal architect, said that the client enjoyed the clean lines of Modern architecture, "but that wasn't necessarily how they live, keeping everything nice and clean." This presented a particular problem in the kitchen, a room notorious for collecting decidedly non-Miesian clutter, such as appliances or dish towels.

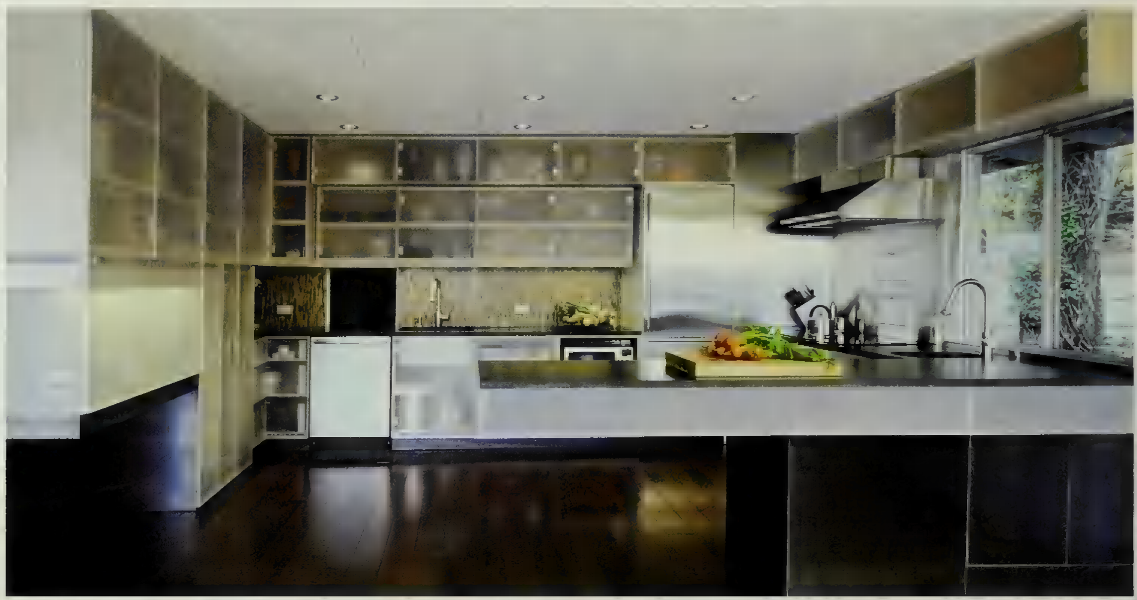
Studio Dwell's solution was to divide the kitchen into two spaces. "We created this area," Peters said, "where you can sort of enclose part of the kitchen with sliding doors that you can close off if you have a sink full of dishes." With the doors closed, a wide table-height wooden counter and an island with a sink and a stovetop are still open to the house, but most of the client's favored Arclinea appliances are hidden.

Studio Dwell also had to deal with a lot that was only 24 feet wide, making natural light a precious commodity. To counteract this, the firm created an atrium in the center of the house that allowed natural light to reach the kitchen from both ends. One end of the second-floor kitchen also opens up onto a roof deck above the house's garage, one way the architects attempted to bring the outside in. Another was the dark gray groundface block that forms two of the kitchen's walls, and also the exterior.

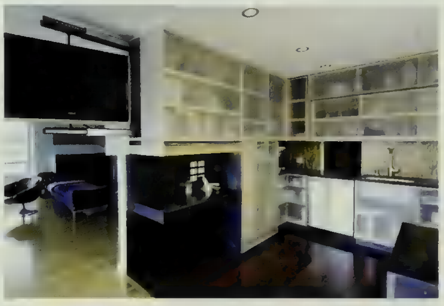
Peters says that he has been to the client's house and has seen the sliding doors "work perfectly." He has been to parties, he says, where caterers operate behind the doors, but it works just as well on normal nights, too. "I've been there on weeknights, where it's a pretty messy kitchen," he said, "and then you just close off the doors, and you've got a clean place to eat." ■ *K.L.*



Architect: *Studio Dwell Architects*
Sources: *Miele (dishwasher, range/oven); Whirlpool (washer, dryer, microwave); Sub-Zero (fridge); Dornbracht (faucets, fittings); Best (range hood); Franke (sinks); Arclinea (cabinetry)*



Acrylic cabinets echo the openness of the home—which is fully exposed on two sides. A flat-screen television (right) slides into a nook built behind the cabinets and rotates between the kitchen and living room.



Translucent cabinets both reveal and conceal

Bogue Trondowski was hired to reformat the 165 square feet of kitchen space for this Darien, Connecticut, home into a more accessible room that would feel of one piece with the free-flowing living and dining areas. Featured in *Architectural Digest* in the 1960s, the house was built to reflect a Japanese influence. It juts out over a lake where the owners keep a boat; often their dock serves as an entrance via the outdoor deck.

In an effort to "reinterpret the landscape in the kitchen," Trondowski says he continued themes already at work in the house and in nature. A workspace in the form of a peninsula mimics the actual peninsula the house sits on; its countertop cantilevers much as the house cantilevers over the water. Granite countertops and a backsplash made with 3form material echo the earthy materials found outdoors.

The translucent, acrylic material used for the cabinet doors calls to mind several of the house's tactics to connect with the outdoors. The house is fully exposed in two directions through large windows and glass doors; at night, it resembles a lantern or beacon, while during the day its permeability gives a sense of openness. Much like these exposures, the cabinets keep food and dishes enclosed but allow some visual access to their contents.

The custom cabinets also provided Trondowski with an opportunity to experiment with materials and technique. "Take a close look at the cabinets; each one has a different handle that was handmade," he says. Each placed in a unique position, the acrylic handles add a rhythm and texture to the whole composition, not unlike the way houses dot the nearby shores. Trondowski also designed a custom cabinet that holds a televisio when not in use. The television can slide out of its nook and be rotated to view programs either in the kitchen or in the living room. *Diana Lind*

Architect: *Bogue Trondowski Architect*

General Contractor: *Mariusz Kupiec*

Sources: *Sub-Zero, Summit (fridges); Bosch (dishwasher, oven, cooktop); Sharp (microwave); Kindred (sinks); Hansgrohe (faucets); Blum, Hafele (cabinet hardware); Alkco, Halo (lighting); Lutron (lighting controls, outlets); Toshiba (television)*

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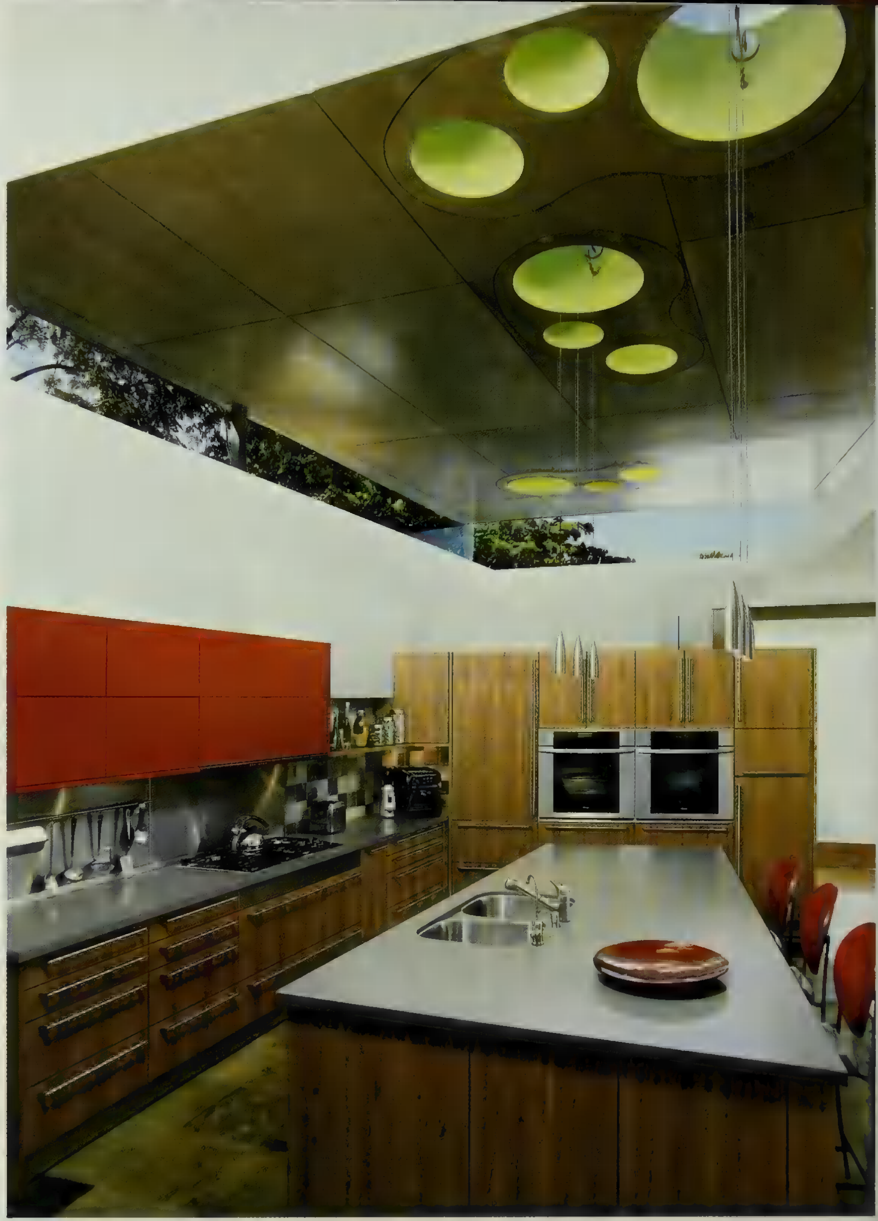


To bring light into a centrally located kitchen, the architect raised the ceiling and punctured it with randomly placed round skylights. Furniturelike cabinetry ties the space to the rest of the home.

Puncturing a kitchen ceiling to create a "constellation of light"

This house in Encino, California, sits dramatically above a canyon overlooking the San Fernando Valley. Light pours into its family room, living room, and bedrooms, but until now, the kitchen didn't see any of this action. The cramped space was located in the center of the house, with little direct connection to the outside.

In response, L.A.-based Abramson Teiger Architects, who [illegible] the entire residence, [illegible] the kitchen into a [illegible] that feels con[illegible] to the rest of the [illegible] did outdoor [illegible]

The firm raised the kitchen ceiling from 8' to 14', creating an overhead plane that appears to hover above narrow clerestory windows that wrap around the top of the space. The architects also installed randomly placed round skylights (colored lime green for emphasis) which allow light to enter at discreet points, creating what firm principal Trevor Abramson, AIA, calls "a constellation of light." The architects also demolished the kitchen's east-facing wall and door, completely opening the space to the adjacent family room, with its large windows and abundant access to light and views.

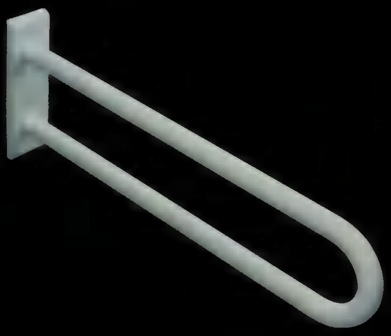
The ceiling, as well as most cabinets, the new central island, and the refrigerator, are clad in cherry wood, which warms the space and makes it feel more intimate, despite its height. The elegant cladding also further connects the kitchen visually to the rest of the house, as do the low-profile stove and the oven hood built into the cabinets, which help the area feel more like a part of the family room than a separate space. "The kitchen becomes part of the furniture," says Abramson.

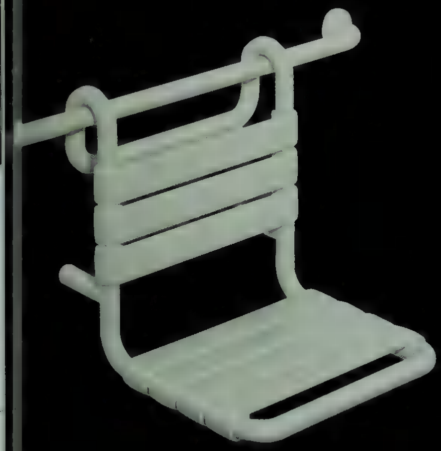
Elsewhere, the kitchen is accented with an elegant stainless-steel sink backsplash, hanging pendant light fixtures, red lacquer cabinets, and a slate tile floor.

Sam Lubell

Architect: *Abramson Teiger Architects*
General contractor: *AJ Engineering & Construction*
Sources: *Gaggenau (oven); Wolf (cooktop); Miele (dishwasher); Sub-Zero (fridge, freezer, wine fridge); Franke (sink, faucet); Ise (disposal); Ceasar Stone (countertop surfaces); Bulthaup Kitchens (cabinets)*

The details that inspired "it's all in the details."





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- ☒ Anti-static
- ☒ Fade Resistant

Part 2 Products
Section 10 80 XX:
Requirements

- ☒ Temperature Stability
- ☒ Rust Resistant
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Section 10 80 XY:
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Kitchen & Bath Portfolio

A memory of Pompeii captured in concrete

Some months after Ogrydziak/Prillinger Architects completed a renovation of this California house, principal Luke Ogrydziak, AIA, was reviewing photos of a trip to Italy. In Pompeii, he had come across a bathroom with a sunken tub beneath an oculus, and he realized how it had subconsciously influenced this sensuous master bath.

The space had once served as a closet, located at one end of the house—its rounded walls emulating in plan the building's barrel-vaulted ceiling. Given the space's existing skylight, Ogrydziak knew a tub should sit underneath it, but the solution of a sunken, circular tub was not obvious. "We tried a lot of object tubs that never seemed right. In the end, we tried to do something that was more about the space than the object," Ogrydziak says. Located off to the side, a small banquette provides space for a sink, with accents of stainless steel and white oak.

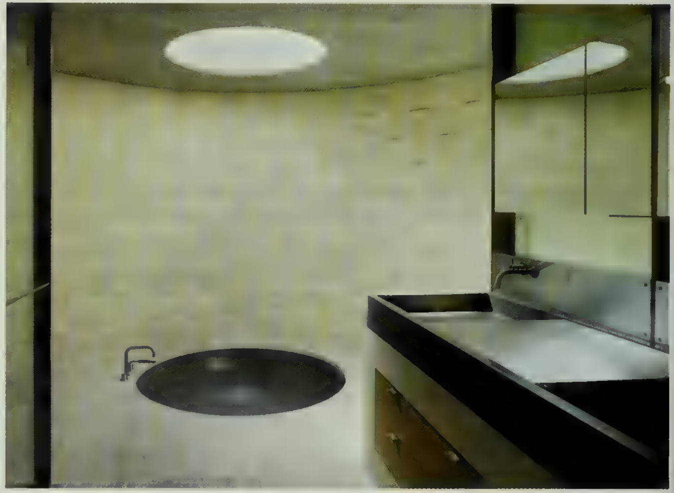
For the renovation, Ogrydziak/Prillinger sandblasted the house's old concrete and installed new plumbing. They clad the bathroom in travertine, placing basket-weave tiles on the wall and slab on the floor. "While the building has a contemporary language, we were really interested in exploring weight and heaviness, and we wanted to use classic, spare materials," he adds. "Travertine, concrete, and stainless steel are not trendy." *D.L.*

Architect: *Ogrydziak/Prillinger Architects*

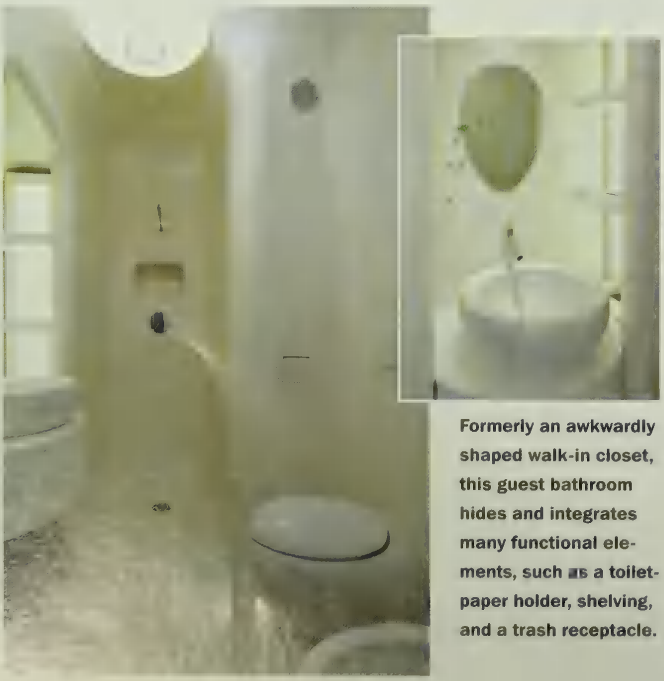
General Contractor: *Ryan Associates*

Sources: *Vola (fittings); Mina (rain shower); Kohler (steam shower); Concreteworks (custom concrete trough sink, sunken tub); 3D Studios (stainless-steel frameworks); Supreme Glass (glazing); Detail A (wood casework); Translite Sonoma (low-voltage track lighting); Lutron (lighting controls, outlets)*

The bathroom's rounded walls echo the barrel-vaulted ceiling of the house (seen left, above double sink). After a long search, the team decided a sunken tub would work best under the oculus (below).



Turning a walk-in closet into a "spacey" bath



Formerly an awkwardly shaped walk-in closet, this guest bathroom hides and integrates many functional elements, such as a toilet-paper holder, shelving, and a trash receptacle.

For a ground-floor interior renovation in Rome's historic Trastevere neighborhood, architect Carola Vannini created a modern counterpoint to the building's 17th-century exterior. The project's guest bathroom—a curvy, resin-coated sliver that seems perfectly suited to HAL 9000's spaceship—epitomizes the contrast.

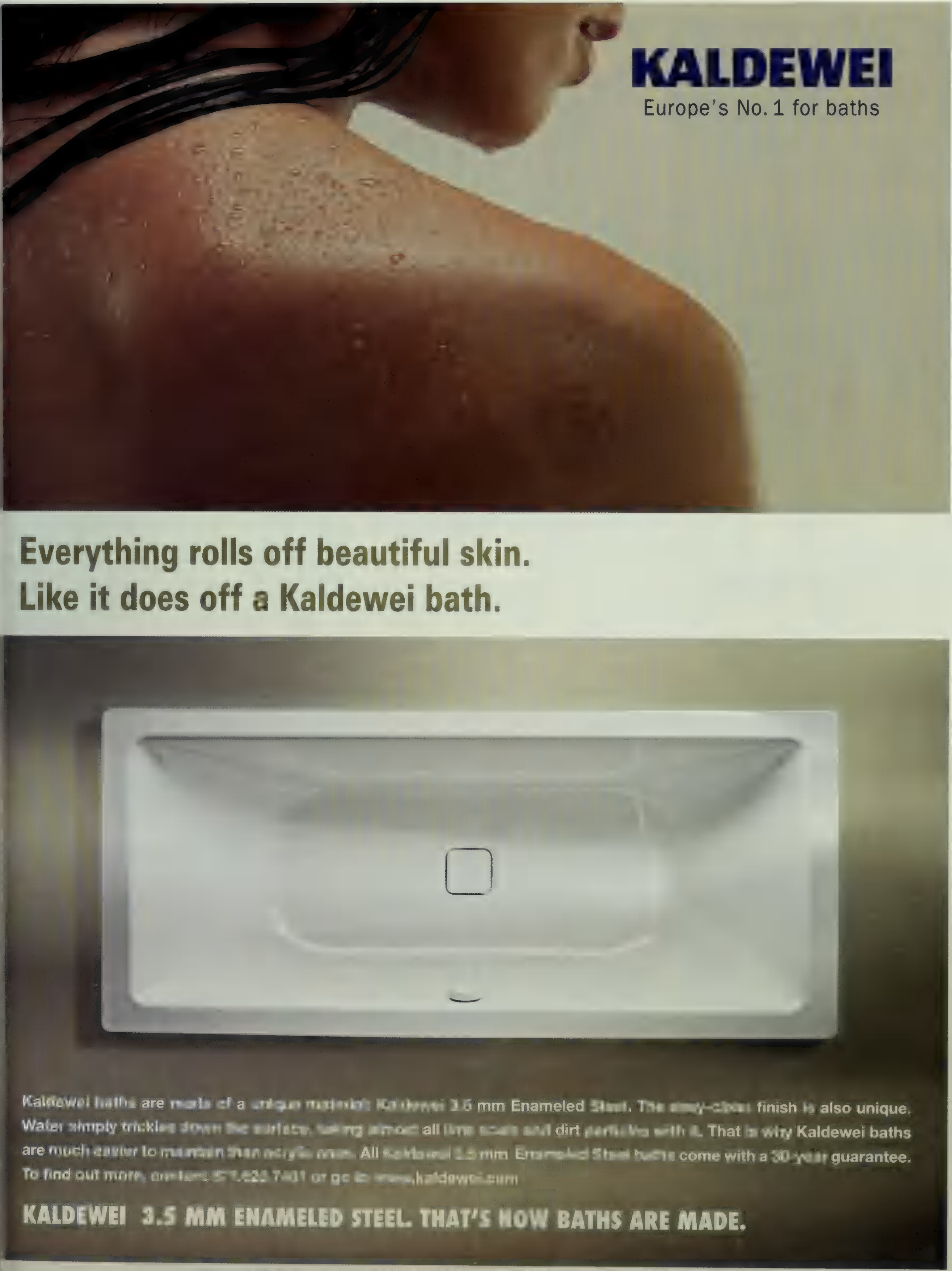
The 1,291-square-foot home is divided into "day" and "night" zones. Black and red bathrooms, Vannini says, reflect the personalities of the couple who live there, while a white guest bathroom represents "the best expression of my design."

The bathroom, measuring only 43" square, was originally an awkwardly shaped walk-in closet. "I had to utilize the small size and angles, the worst characteristics, and transform them into a strength," Vannini says. To do so, she smoothed all the corners of the bathroom and covered them in a three-layered nontoxic resin. The result "denies any visual reference point" to lend the appearance of a much larger space. In order to enhance the size further, Vannini also kept the new bathroom clutter-free: The toilet-paper holder is hidden next to the lavatory; the cantilevered vanity beneath the washbasin includes a trash receptacle; and shelving is integrated in the walls enveloping the basin. While plumbing fixtures do project into the room, their bubble shapes capture the spirit of the organic container. *D.S.*

Architect: *Carola Vannini Architecture*

General Contractor: *Arcangeli Alessandro*

Sources: *Tiseo Woodworking (furniture); Catalano (washbasin, toilet, bidet); Fantini (shower faucet); Sikkens (white resin)*



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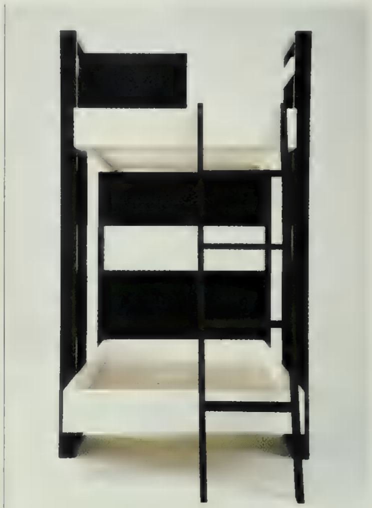
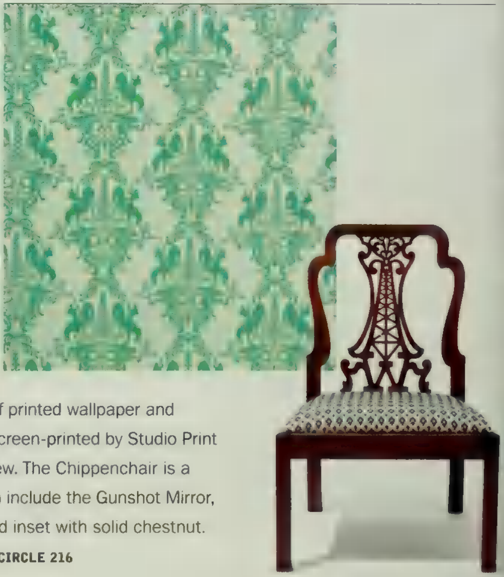
Standouts at the show, now in its fifth yea pushed the limits of traditional categories s as children's furniture and wallpaper. *Diana L*



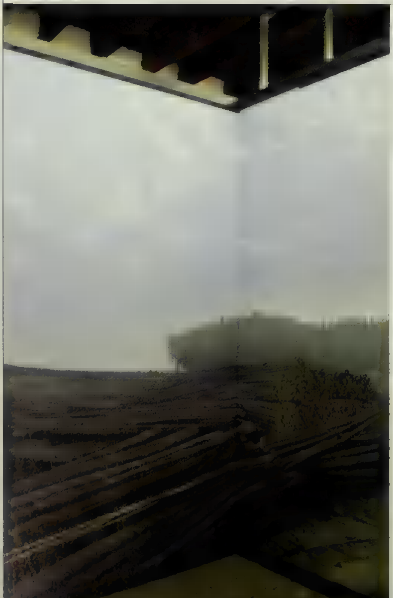
For the Modernists of tomorrow

Founded by Jenny Argie and Andrew Thorton, Argington is a new furniture company dedicated to pairing young children with high design. Combining backgrounds in fine art and architecture, the couple was inspired to create a line of Modern children's furniture after the birth of their first child. Argington creates sustainable pieces made from wood and fabrics that are nontoxic and ecofriendly, yet durable. Pieces accommodate all ages, from a bunk bed for young siblings to a high chair even a mom can sit on. Argington, Brooklyn, N.Y. www.argington.com **CIRCLE 215**



Oils well that ends well

Born in Des Moines, Iowa, from a long line of German carpenters, Paul Loebach combines his past with present events in his debut line of furniture. He juxtaposes the oil rig, symbol of modern commerce and capitalism, with the civility of printed wallpaper and Chippendale chairs. The Yee-Ha Wallpaper is hand screen-printed by Studio Print Works and designed in collaboration with Syrette Lew. The Chippenchair is a limited-edition work. Other pieces from his collection include the Gunshot Mirror, made of mirrored glass that is shot by a .22 rifle and inset with solid chestnut. Paul Loebach, Brooklyn, N.Y. www.paulloebach.com **CIRCLE 216**

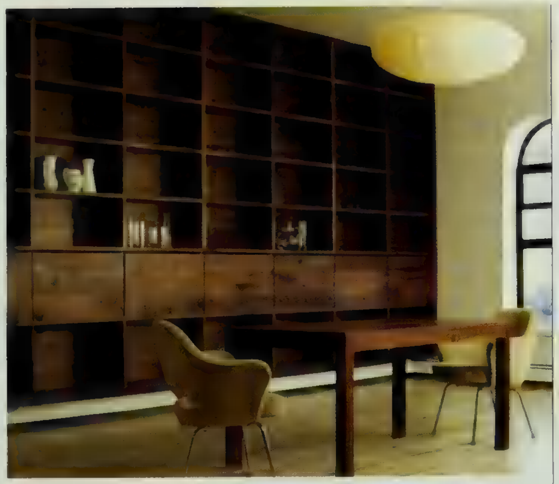


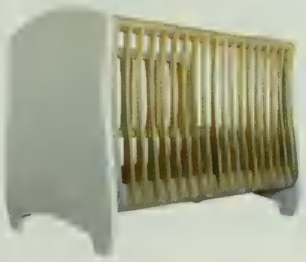
Twin visions

While most exhibitors at the show are sensitive to the ecological damage that producing new furniture creates, Faust Decorative Arts' 9' x 20' mural depicting a deforested landscape (left) brought the message home. The mural illustrates the apocalyptic feeling floating through much of the world nowadays and reiterates the company's ironic nod to the utopian scenes customarily painted on murals. Owned by twin brothers, Faust creates custom pieces according to the vision of its clients. Faust Decorative Arts, Brooklyn, N.Y. www.f2da.com **CIRCLE 217**

► Doing it for themselves

After having spent a decade fabricating custom pieces for museums, artists, and architects, Zach Hadlock, along with a small group of workers, established Platform Furniture and Fabrication. With this enterprise, Hadlock extends his talents to spare interior forms that look like timeless classics. The collection of furniture includes china cabinets, credenzas, and bookcases as well as custom pieces, all in a far-ranging palette of reclaimed Douglas fir, Honduran mahogany, and aluminum, among other materials. Platform Furniture and Fabrication, Brooklyn, N.Y. www.platformfaf.com **CIRCLE 218**





◄ Many layers of design

4-Pli is a four-person architecture and fabrication firm whose work includes installations in local wine stores and restaurants. Their debut at Brooklyn Designs included an array of furniture for domestic (crib, top) and institutional (conference table, left) needs. The Puzzle Conference Table is composed of seven individual segments that link together to make a large meeting table. The segments are easily separated for use as autonomous desks, and roller-blade wheels on each leg make the sections mobile. 4-pli, Brooklyn, N.Y. www.4-pli.com **CIRCLE 219**

▼ The sustainable borough

Founded by Sef Pinney as an outlet for 3D, graphic, and fiber-based creative endeavors, Elucidesign set up its product design studio/shop in Williamsburg in 2005. The studio seeks to develop furniture prototypes that prioritize functionalty, ergonomics, and materials while not sacrificing sustainability. To meet those needs, the firm uses materials with ow embodied energy; water-based, nontoxic finishes; and FSC or domestic woods from managed forests. Its Redpoint collection, which includes three tables, a desk, and a cabinet, is also portable. Elucidesign, Brooklyn, N.Y. www.elucidesign.com **CIRCLE 220**

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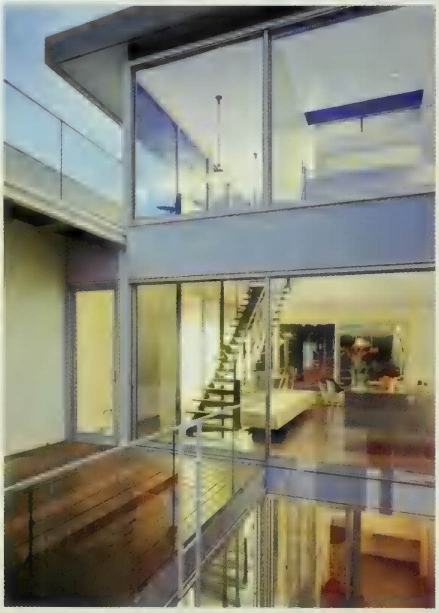
The AIA Housing and HUD Awards Programs Honor 22 Projects

AIA HOUSING COMMITTEE AWARD: ONE- AND TWO-FAMILY CUSTOM RESIDENCES

Project: *1532 House*
Location: *San Francisco*
Architect: *Fougeron Architecture*



Inserted onto a sloping, 25-foot-wide lot in San Francisco, two distinct volumes compose the 3,200-square-foot 1532 House. A garage, studio, and terrace form the street-side volume. Separated by a courtyard, the rear volume houses bedrooms and living spaces. The jury appreciated the house's subtlety and resourcefulness: "The house has a street presence that doesn't overpower. The plazas, balconies, and courtyards are very inventive uses of a limited space." Floor-to-ceiling windows, glass floors, and skylights allow light to penetrate deep into [illegible] rooms.

Project: *House at the Shawangunks*
Location: *New Paltz, N.Y.*
Architect: *Bohlin Cywinski Jackson*

Nestled in the woods on a steeply sloped site, this house uses simple geometry and materials to complement the pristine beauty of the Shawangunk Ridge on which it sits. A black-stained concrete foundation forms a pedestal under a cubic volume that projects from the hillside. A rectangular volume rises behind the cube, anchoring it to the sloping landscape. The jury praised the house's simple plan and the quality of its detailing, saying, "A secure hand made this happen."

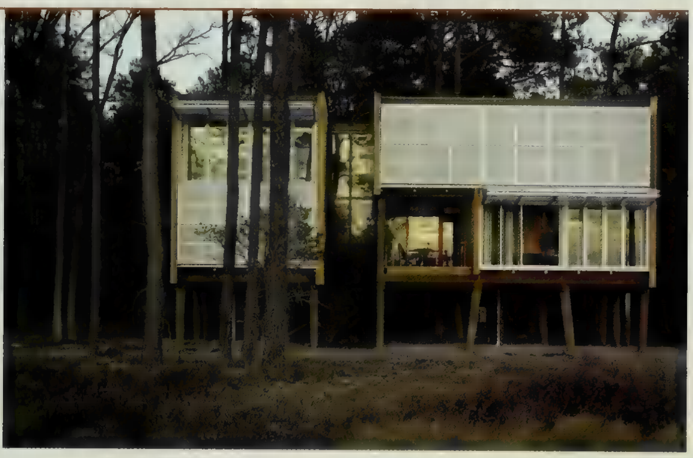
Project: *A Ranch House in the San Juan Mountains*
Location: *Telluride, Colo.*
Architect: *Michael Shepherd Architect, AIA*
Client: *Michael Shepherd and Candida von Braun*

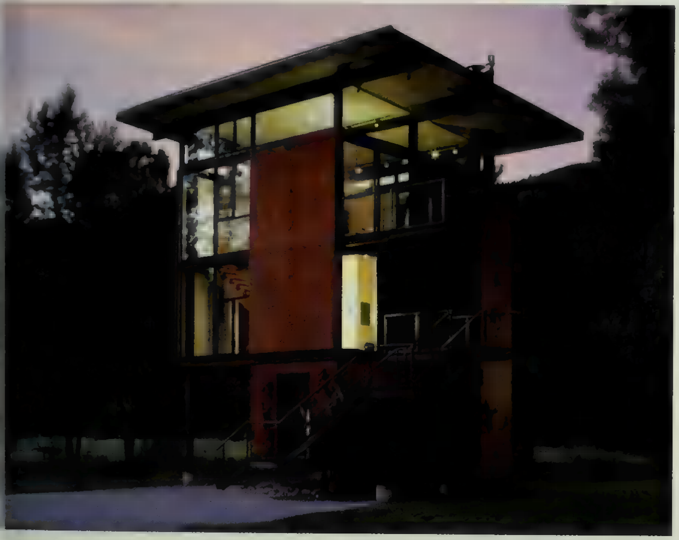
At an elevation of 9,000 feet, in a remote region of Colorado's San Juan Mountain Range, architect Michael Shepherd synthesized Modernism and regional vernacular in a ranch that jury members called "timeless," "serene," and "wonderfully understated." Recycled oak and Douglas fir were used for flooring, doors, and cabinetry. Solar power and propane are the primary energy sources.

It isn't a great house if it isn't a green house today, so it's no surprise that most of the winning projects in the 2007 AIA Housing Awards embrace sustainability. Many of the buildings engage their natural environments in form as well as function, setting these architects apart by translating environmental issues from a design responsibility into an aesthetic. Other winning buildings are distinguished for their contributions to the human environment. Community revitalization and residences for homeless, sick, and disabled people received exceptional recognition this year. ***Christopher Kieran***

Project: *Loblolly House*
Location: *Taylors Island, Md.*
Architect: *KieranTimberlake Associates*
Client: *Barbara DeGrange*
[RECORD, April 2007, page 140; November 2006, page 185]

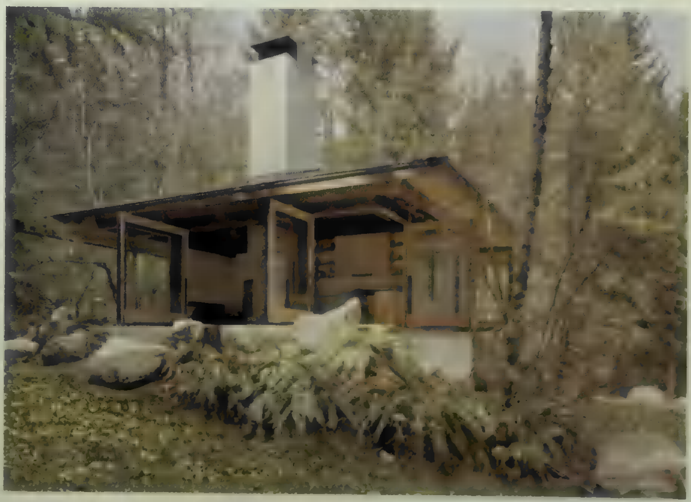
Perched by the water, on a barrier island in the Chesapeake Bay, Loblolly House was assembled entirely from off-site-fabricated elements and ready-made components. Stephen Kieran, FAIA, sought to fuse the natural elements of the island to architectural form. The surrounding Loblolly pines and tall grasses, the sea, the horizon, the sky, and the western sun define the place of the house and are woven into the architecture, which the jury called "remarkable" and "unique." The jury also noted the use of local materials and an innovative plan for disassembly and reuse.





Project: *Tye River Cabin*
Location: *Skykomish, Wash.*
Architect: *Olson Sundberg Kundig Allen Architects*
Client: *Jim Dow*

A wooden tent stretched over a platform makes up the Tye River Cabin, whose walls double as swing-out windows, transforming the house into a pavilion where interior and exterior merge. Jury members recognized the romance of the space, commenting, "This project is a simple, elegant solution to having shelter while remaining one with nature. The modest size makes you feel like you're in the forest, with no boundaries." The materials are allowed to weather to reflect the natural tone of the wooded site.

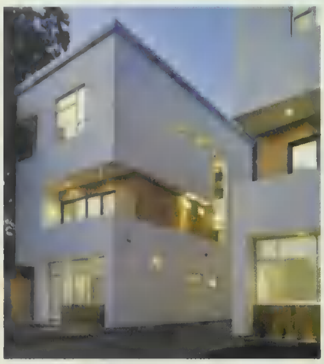


Project: *Delta Shelter*
Location: *Winthrop, Wash.*
Architect: *Olson Sundberg Kundig Allen Architects*
Client: *Michael Friedrich*
[RECORD, April 2006, page 92]

The jury raved about the Delta Shelter, calling it "gorgeous" and "in harmony with the site," perched on stilts above a flood plain in northern Washington. A large wheel—one of Tom Kundig's famous "gizmos"—spins to open and close metal shutters, which protect the house from the harsh climate. Prefabricated metal frame, shutters, and stairs expedited construction-site activity. When open, the shutters reveal a 360-degree view.

Residential News

AIA HOUSING COMMITTEE AWARD: ONE- AND TWO-FAMILY PRODUCTION HOMES



Project: *The 505*
Location: *Houston*
Architect: *Collaborative Designworks*
Client: *James Evans, AIA*

A four-unit housing development in downtown Houston, the 505 maintains an architectural identity while incorporating sustainable design principles and succeeding financially. The jury was impressed by the street frontage, noting, "It respects the character of the neighborhood. Elegant use of materials gives richness to the structure, all within the low budget." The "cleverly planned" units use natural cross ventilation, daylighting, permeable ground coverings, stack-vented rain screens, radiant barrier roofing, recycled and sustainable materials and finishes, tankless water heaters, and high-efficiency appliances and equipment to ameliorate environmental impact.

Project: *Danielson Grove*
Location: *Kirkland, Wash.*
Architect: *Ross Chapin Architects*
Client: *The Cottage Company*

Each home in Danielson Grove sits on a private lot facing a garden courtyard. This pocket neighborhood was developed by Ross Chapin Architects with the Cottage Company to demonstrate the market for detached housing alternatives for small households. The houses are Built Green/Energy Star–certified, and the site's large trees were preserved during construction. "The central courtyard and community building are great organizing features," said one jury member. A commons building for potlucks, family gatherings, and meetings fosters a sense of community.

AIA HOUSING COMMITTEE AWARD: MULTIFAMILY HOUSING

Project: *1247 Wisconsin Avenue*
Location: *Washington, D.C.*
Architect: *McInturff Architects*
Client: *EastBanc*

Restoring two mid-19th-century commercial and residential buildings, Bethesda, Maryland–based McInturff Architects expanded street-level retail space and created six luxury residential units above.

The new residences are clad in zinc with Douglas fir windows to distinguish them from the traditional brick base. Each has at least one private outdoor space screened by dense planting to invoke the feeling of a rooftop village floating above the bustling Georgetown shopping street.

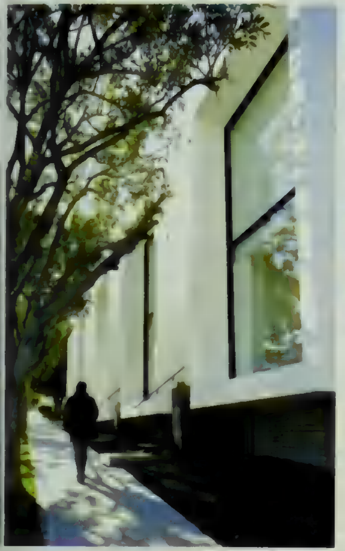
Project: *High Point Community*
Location: *Seattle*
Architect: *Mithun*
Client: *Tom Phillips, Seattle Housing Authority*

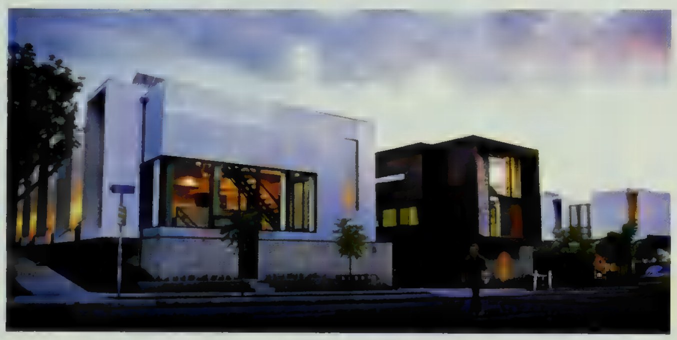
A New Urbanist site concept for the HUD HOPE VI program replaces 716 post–World War II subsidized housing units with 1,600 new residential units on 120 acres. Community involvement in the design process won the project the HUD Award for Community-Informed Design (page 208).

Project: *Bridgeton Hope VI*
Location: *Bridgeton, N.J.*
Architect: *Torti Gallas and Partners*
Client: *The Ingerman Group*

With a 2001 HUD HOPE VI grant, Torti Gallas and Partners took an unconventional approach to neighborhood revitalization. Rather than demolish and replace the existing public housing, the firm decided to restore it as riverside parkland and to knit new housing into the city's historic fabric. An impressed juror remarked, "The project is beautifully detailed and researched. It transforms the neighborhood back to what it was."

AIA HOUSING COMMITTEE AWARD: MULTIFAMILY HOUSING



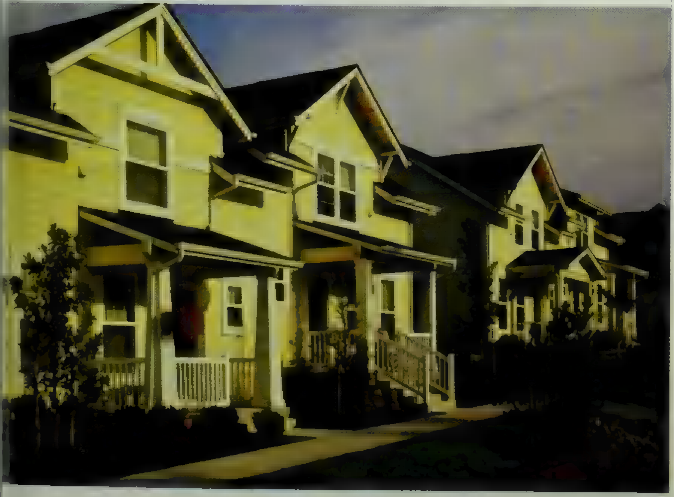


Project: *The Union*
Location: *San Diego*
Architect: *Jonathan Segal, FAIA*
Client: *Jonathan Segal*

Jonathan Segal's adaptive reuse of an old textile manufacturers' union hall in San Diego incorporates two live/work lofts and the architect's own office. Featuring a fully sustainable edifice, each unit generates its own power from roof-mounted photovoltaic panels and is landscaped with drought-tolerant plants. The jury took note that the architect acted also as the developer, owner, contractor, and landscape architect.

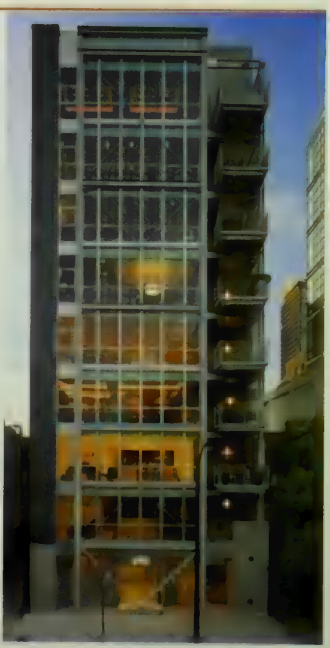
Project: *Salishan Neighborhood Revitalization*
Location: *Tacoma, Wash.*
Architect: *Torti Gallas and Partners*
Owner: *Tacoma Housing Authority*

A HOPE VI grant funded Torti Gallas and Partners' revitalization of this Tacoma neighborhood. Previous development mistakes had caused environmental damage to the community's natural resources. Restoring and protecting Swan Creek was a major initiative in this project, which uses green space to create a connective, pedestrian-friendly neighborhood. The project also won the HUD Award for Community Connection (page 208).



Project: *156 West Superior Condominiums*
Location: *Chicago*
Architect: *The Miller/Hull Partnership*
Client: *Ranquist Development*
[RECORD, May 2007, page 226]

Despite a constrictive 45-by-100-foot site, this nine-story condominium in the River North district of downtown Chicago is beautifully scaled and situated. Cantilevered decks enhance each unit, and a large common roof deck provides views of the Chicago skyline for all residents. Minimalism and an externalized structure echo the economy, efficiency, and order of the Second Chicago School of Architecture.



Residential News

AIA HOUSING COMMITTEE AWARD: SPECIAL HOUSING

Project: *Patrolia Loft*
Location: *Boston*
Architect: *Ruhl Walker Architects*
Client: *Brian Patrolia*

The Patrolia Loft is designed for a wheelchair-bound client. Accessible elements are not concealed unnecessarily but are incorporated honestly into the design, without becoming afterthoughts or distractions. For example, the kitchen counters run at two levels—an attractive design detail that allows visitors to participate in kitchen activities.

Project: *Regional Homeless Center for Los Angeles*
Location: *Los Angeles*
Architect: *Jeffrey M. Kalban & Associates Architecture*
Client: *People Assisting the Homeless (PATH)*

A major renovation of an abandoned 1960s three-story office building turned it into the 40,000-square-foot Regional Homeless Center for Los Angeles. A ground-floor "mall" of services houses 19 organizations and agencies to assist the homeless in transitioning back to mainstream society. Residential areas contain individual sleeping quarters and transitional housing with kitchen and dining spaces. The jury calls it "an amazing transformation of a brutal building, which enhances its environment and makes it a welcome addition to the neighborhood."

Project: *The Plaza Apartments*
Location: *San Francisco*
Architect: *Leddy Maytum Stacy Architects and Paulett Taggart Architects, in association*
Client: *Public Initiatives Development Corporation*

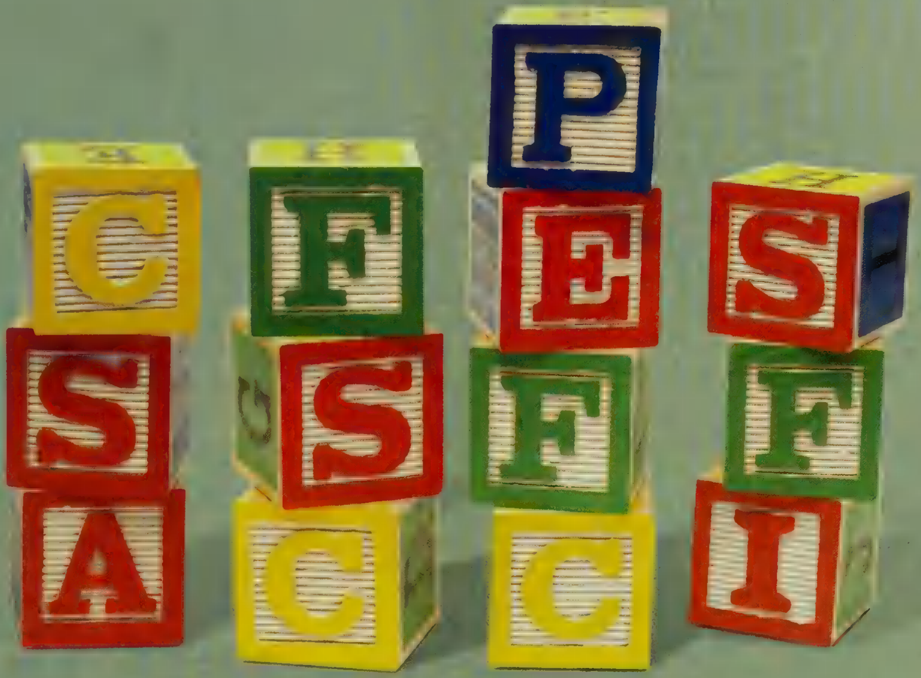
The client replaced the Plaza Hotel with a mixed-use development for chronically homeless people. More than 100 studio apartments incorporate private kitchens and baths. The brightly colored facade, ground-floor commercial space, theater [illegible] and residential courtyard [illegible] streetscape and make [illegible] tion to the revitaliza- [illegible] munity.

Project: *The DESIGNhabitat 2 House*
Location: *Greensboro, Ala.*
Architect: *The DESIGNhabitat 2 Studio, School of Architecture, Auburn University—David W. Hinson, AIA*
Client: *Hale County (AL) Habitat for Humanity*

Designed for Habitat for Humanity, the DESIGNhabitat 2 House was completed in June 2006 for a family that lost its home to Hurricane Katrina. The DESIGNhabitat 2 Studio in the School of Architecture at Auburn University is led by David W. Hinson, AIA. The house integrates the modular construction process with design-quality goals, climate-appropriate design features, and energy performance. The jury noted its exceptional energy efficiency. The studio hopes to promote the integration of modular construction in future affordable-housing development initiatives.

Project: *Shirley Bridge Bungalows*
Location: *Seattle*
Architect: *Ron Wright and Associates/Architects*
Client: *AIDS Housing of Washington*

Shirley Bridge Bungalows respond to the shortage of affordable and appropriate housing for low-income people disabled by AIDS. Six cottages are organized around a central common space. Features like a forced-air heating system, which increases ventilation and air quality, enhance independent living and reduce the rate of opportunistic infections.



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Residential News

AIA/HUD SECRETARY AWARDS: EXCELLENCE IN AFFORDABLE HOUSING DESIGN

Project: *El Carillo Housing Authority*
Location: *Santa Barbara, Calif.*
Architect: *Cearnal Andrulaitis*
Client: *Housing Authority, City of Santa Barbara*

Designed in the Spanish Colonial Revival style, the El Carillo Housing Authority raises the bar for aesthetics in affordable-housing design. Responding to a growing homeless population and the closure of several affordable, single-room-occupancy structures over the past several years, the City of Santa Barbara has created a facility worthy of recognition. One juror raved, "One's preconceived idea of what affordable housing looks like has been totally erased. Wow!" In addition to the residential units, there are on-site resident services providing support, including job training, employment-placement assistance, and help with independent living for those with disabilities or disadvantages. "This sets a high and welcome precedent for private/public partnerships to solve the dire need for affordable housing in one of the most expensive towns in the nation," said the jury.

AIA/HUD SECRETARY AWARDS: COMMUNITY-INFORMED DESIGN

Project: *High Point Community*
Location: *Seattle*
Architect: *Mithun*
Client: *Tom Phillips, Seattle Housing Authority*

Recognizing designers' facilitation of community involvement, the Community-Informed Design Award seeks projects that focus on the design process as much as the resulting physical structures. The High Point Community in Seattle replaces a previous community, designed after World War II. Half of the 1,600 new residential units are designated for low-income residents, and half are market-value homes. The neighborhood integrates a variety of incomes, ethnicities, and family structures, inviting social contact and shared community identity. Aware of the difficulties of the interactive design process, the jury was impressed by the results, calling it "the highest standard for multicultural, multilingual participation."

AIA/HUD SECRETARY AWARDS: CREATING COMMUNITY CONNECTION

Project: *Salishan Neighborhood Revitalization*
Location: *Tacoma, Wash.*
Architect: *Torti Gallas and Partners*
Client: *Tacoma Housing Authority*

The integration of parks, paths, and swales throughout the Salishan Neighborhood Revitalization in Tacoma, Washington, creates a connective, pedestrian-friendly neighborhood. The Creating Community Connection award recognizes projects that incorporate housing within other community [illegible] for the purpose of revitalization or planned growth. With a HOPE VI grant, Torti Gallas and Partners strove to restore and protect the community's natural resources, which had been damaged by the previous development's mistakes. Achieving 91 percent filtration of all storm water on-site, the project vastly reduces pollution flowing into the neighborhood's creek. The jury appreciated that the new design is not only sensitive to the needs of the community, but to the surrounding environment as well.

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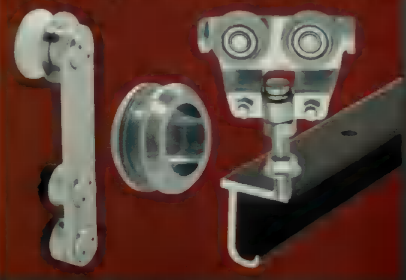

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Submissions

Entry fees and a letter of intent written on the organization's letterhead must be received by August 31, 2007. A proposal, three reader copies, and supporting materials should be sent to the American Institute of Architects no later than September 21, 2007. For information on the CES Award for Excellence, including submission instructions, visit **www.aia.org/conted2008**.

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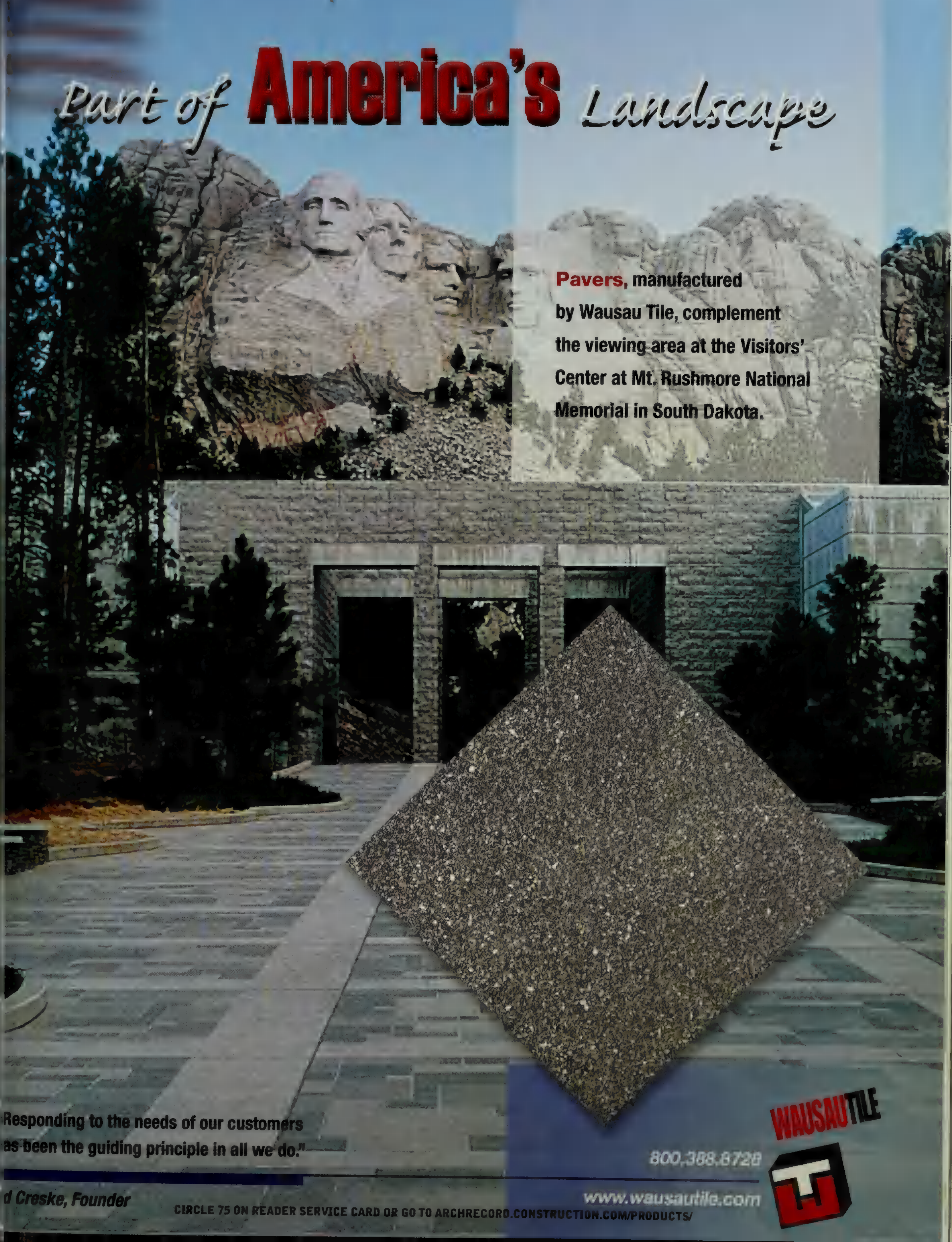
AIA



Pavers, manufactured by Wausau Tile, complement the viewing area at the Visitors' Center at Mt. Rushmore National Memorial in South Dakota.

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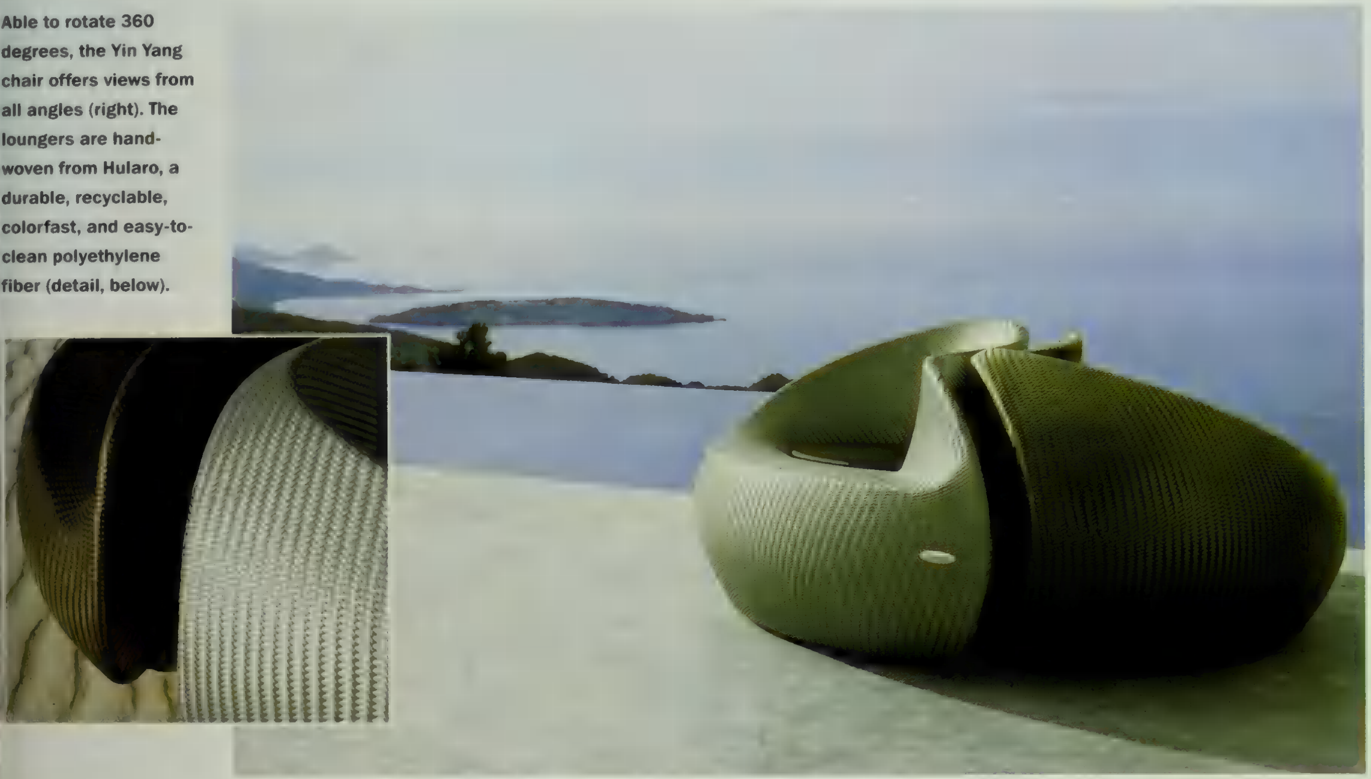
Product Focus

Landscape Products

Our roundup this month includes a mesh fence and bike rack that double as sculpture and help make our outdoor spaces more comfortable and livable. For the latest landscape product introductions, visit the ASLA Annual Meeting & Expo in San Francisco from 10/5 to 10/9. *Rita Catinella Orrell*

Able to rotate 360 degrees, the Yin Yang chair offers views from all angles (right). The loungers are hand-woven from Hularo, a durable, recyclable, colorfast, and easy-to-clean polyethylene fiber (detail, below).



Handwoven, weatherproof chair inspired by the harmony of opposites

Yin Yang is the latest signature colection of indoor/outdoor lounge seating from Janus et Cie. Designed exclusively for Dedon by Nicolas Tompkins, Yin Yang takes its shape from the nesting crescents that form the ancient Chinese symbol for nature's harmony of opposites: dark and light, masculine and feminine, active and passive.

According to Janus et Cie's marketing director Wendy Rhiger, the chair created a buzz at the Salone del Mobile this year and ust took home a red dot design award, one of the largest and most renowned product design award competitions in the world.

Tompkins was inspired to create the tête-à-tête loungers while on Olango Beach on Cebu island in the Philippines. Cebu, a mecca for the traditional art of handweaving, is also the location of Dedon's manufacturing facility.

Ideal for residences, hospitality, museums, corporate campuses, universities, and shopping centers, the flowing form of each Yin Yang chaise incorporates more than 13,000 feet of bronze or platinum-hued Hularo synthetic fiber. The fiber is handwoven by skilled Filipino artisans over a powder-coated aluminum frame shaped to the alternating convex and concave surfaces of the design.

Hularo polyethylene fiber is easy to maintain and clean, tear-resistant, colorfast, and recyclable. It is resistant to weather, UV, soil, microorganisms, and body lotions. It is also resistant to chlorinated and sea water, making it ideal for spa, seaside, and poolside applications.

Each half of the piece features an integrated seating cushion for the single sitter. The circular seats contrast either the bronze or platinum color of the chair body and are made of a polyurethane surface and polyester backing, offering great wearability and easy maintenance. Many other pieces within the Dedon collection use the same bronze- and platinum-colored fibers, allowing them to easily coordinate with the lounge chairs.

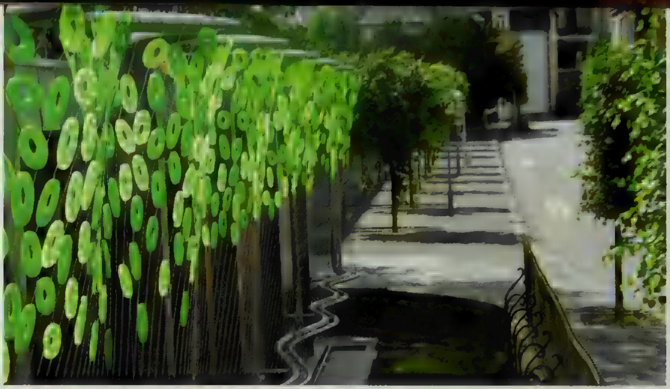
The individual chairs are 32.8" high, 75.2" wide, have a seat height of 18 ½", and weigh approximately 66 pounds. The individual and combined chairs are also rotatable 360 degrees.

According to Rhiger, the chair has already been specified in several projects, including the Regalia Condominium, in Sunny Isles Beach, Florida; Monument Place Condominium, in Fairfax, Virginia; and the Potomac Yard shopping center, in Arlington, Virginia. Janus et Cie, West Hollywood, Calif. www.janusetcie.com **CIRCLE 221**

For more information, circle item numbers on Reader Service Card or go to **architecturalrecord.com/products/**.

◂ Teak and ipé deck tiles

For remodeling or new construction, teak deck and patio tiles from East Teak are made of high-quality, kiln-dried, Indonesian plantation teak. East Teak's ipé tiles offer the durability of teak but feature darker wood tones. Ipé tiles age to a silvery gray or maintain their rich dark-brown color with a penetrating wood sealer. Both wood tiles are ideal for condo or apartment balconies, existing wood deck or cement patios, roof decks, or walkways. East Teak Fine Hardwoods, Dallas. www.eastteak.com **CIRCLE 222**

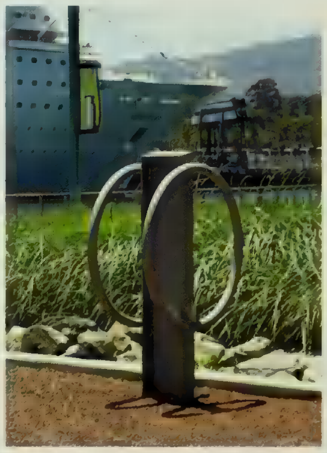


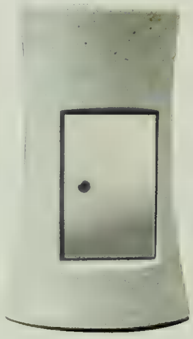
▴ Screening a new piece of art

For the Dellheicht Primary School complex in Luxemburg by Echternach-based architects Witry & Witry, a stainless-steel cable mesh serves as both protection and artwork for a covered break hall that links the traditional school building with a new glass sports building. South African installation artist Sally Arnold incorporated large green Plexiglas sequins into the mesh to indicate the areas designated for sports and games. Carl Stahl DecorCable Innovations, Chicago. www.decorcable.com **CIRCLE 223**

▸ Bicycle sculpture

The Tendo outdoor bicycle rack, designed by German architect Karsten Winkels, is suited for city sidewalks, college and university campuses, corporate grounds, malls, public parks, and waterfront areas. Characterized by a modern, two-sided circular design with an overall vertical orientation, Tendo offers a sculptural appearance when not in use. It comes standard in graphite gray, but special colors are available. All hardware is stainless steel. HessAmerica, Gaffney, S.C. www.hessamerica.com **CIRCLE 224**



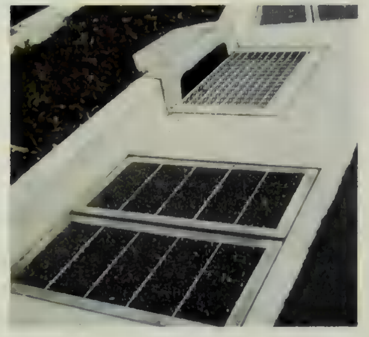


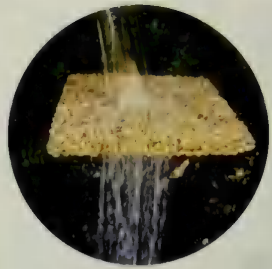
◂ Smokeless ash receptacle

According to the International Coastal Cleanup organization, cigarette litter is at the top of its list of collected trash, accounting for nearly 35 percent of all debris picked up. Quick Crete's Halo ash receptacle not only encourages the proper disposal of cigarette waste, but virtually eliminates tobacco smoke and odors by trapping them inside, keeping the surrounding air cleaner. The product's covered design also eliminates the unsightly appearance caused by partially smoked or spent cigarette and cigar butts. The line is available in seven styles, ranging from classic to contemporary. Quick Crete, Norco, Calif. www.haloqc.com **CIRCLE 225**

◂ Hard landscaping aids

Markant by ACO includes a range of drainage and building products designed to meet the demands of residential projects. Three trench drain systems are available for driveways, patios, and other hard landscaped areas. DrainLine 100 (left) uses a polymer concrete V-shaped construction to maximize hydraulic performance. Made of 100 percent recycled plastic, GrassGrid (below left) reinforces grass areas to allow vehicle parking and traffic without excessive wear and erosion. ACO Polymer Products, Chardon, Ohio. www.acousa.com **CIRCLE 226**





◂ Water filters

Permapave Permeable pavers are used worldwide as a result of public concern about ecological and legal requirements that relate to storm-water management. Made from natural stone, the 100 percent porous pavers can help eliminate pollutants from waterways, recharge groundwater, and turn water waste into a positive feature. With a flow rate of up to 7.5 gallons per second per square foot, they can eliminate 100 percent of gross pollutants and an extremely high percentage of hydrocarbons. Permapave Industries, Syosset, N.Y. www.permapavellc.com **CIRCLE 227**

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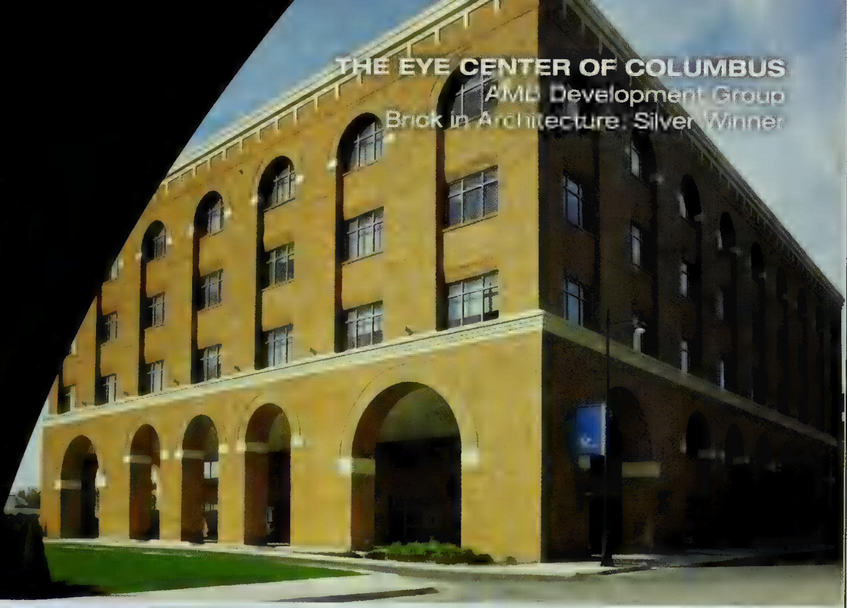
AWARD WINNING



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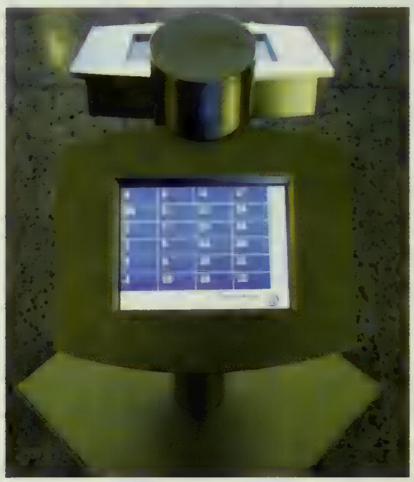
Product Briefs

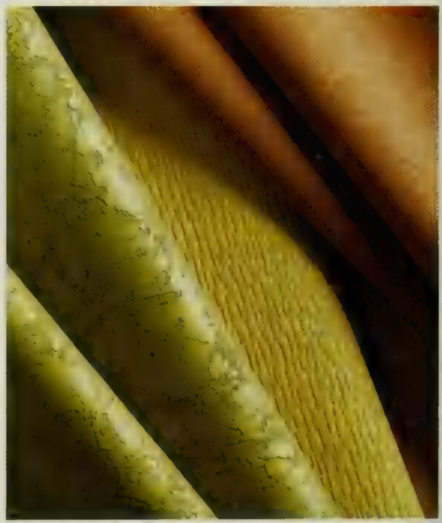


◄ ADA-compliant dispatch system

While other manufacturers use a push-button keypad, the Destination Dispatch system from ThyssenKrupp uses a touch-screen kiosk (housed in a stand-alone column or mounted in a custom cabinet to match building decor) to direct passengers to specific elevator cars in order to reduce trip time and crowding. Destination Dispatch is available in an up-peak version with kiosks only in high-traffic areas, such as lobbies and cafeterias, or with kiosks on every floor of the building. ADA-compliant, it has a special button that provides audible voice instructions and gives directions to the proper car and announces its arrival. In addition, it calls the least crowded car for better wheelchair access, and slows door operation to ensure adequate boarding time. ThyssenKrupp Elevator, Frisco, Texas. www.thyssenkruppelevator.com **CIRCLE 228**

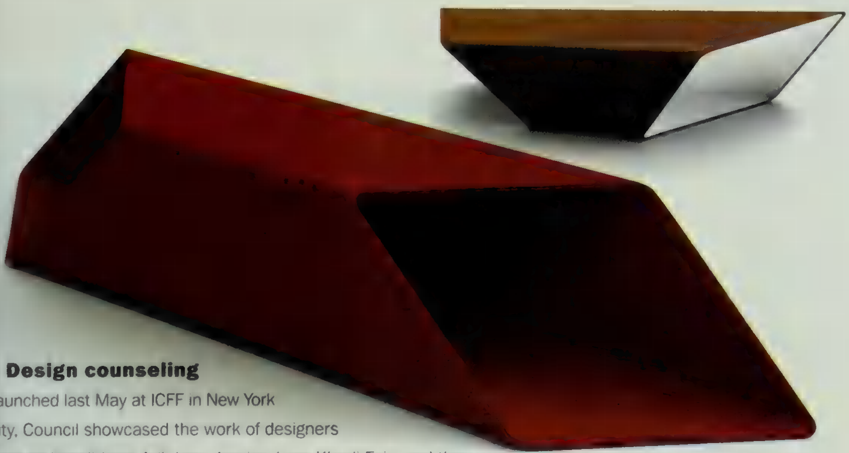
► A second chance for vinyl

According to LSI Wallcovering, its new Second-Look collection is the first line of recycled vinyl wall covering on the market. Three collections include 20 percent recycled content and a minimum of 10 percent post-consumer content. Highly dimensional selections include Umbria (near right), a corklike plaster effect from the Versa collection; Tambur (middle), a classic basketweave design from the Plexus collection; and Ikat (far right), a soft linen texture from the Cirqa collection. The low-VOC, Type II, 20-ounce wall covering measures 54" wide, uses water-soluble inks and water-based adhesives, and is available with Permavent microventing that allows walls to breathe. Designers can also reclaim vinyl wall covering of any make from their renovation projects and send it to LSI for recycling into postconsumer recycled wall covering. LSI Wallcoverings, Louisville. www.secondlookwc.com **CIRCLE 229**



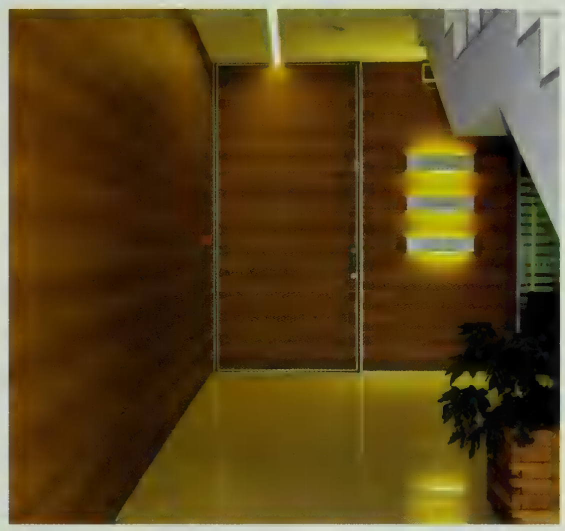
◄ Handled with care

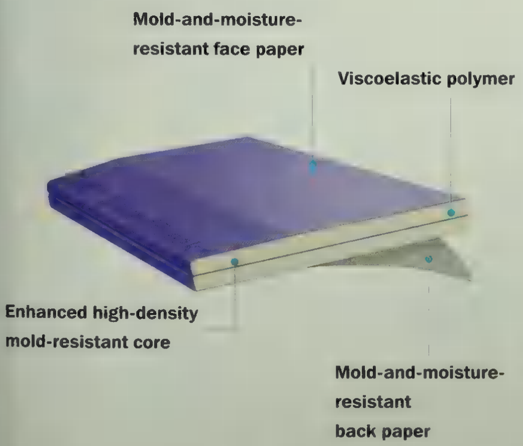
The skilled craftsmen of Von Morris hand-finish each piece of door hardware to achieve a rich high luster found only in hand-rubbed brass. Each piece is then clear-coated with a catalyzed epoxy lacquer to produce a long-wearing protective coating. The entire Von Morris portfolio is available in 30 finishes. The company's own proprietary finish, Eterna, is guaranteed not to tarnish, pit, flake, or discolor for as long as the buyer owns the home. Two of the six signature collections from the company include Beaded (top left), a Victorian style with a highly detailed beaded edge and slightly raised escutcheon plate and Moorestown (bottom left), which pairs an octagonal knob or lever that gracefully lofts into a round shank. Von Morris, Camden, N.J. www.vonmorris.com **CIRCLE 230**



▲ Design counseling
Launched last May at ICFF in New York City, Council showcased the work of designers such as Israeli-born Arik Levy, Iranian-born Khodi Feiz, and the San Francisco–based firms One & Co and Mike and Maaike. The company's premiere collection includes dining and lounge pieces, storage, seating, and occasional tables. Designed by company founder Derek Chen, Section (above) can be used as seating, storage, and display. Available veneered or upholstered for indoor use or in powder-coated steel or polished stainless steel for outdoors. Council, San Francisco. www.councildesign.com **CIRCLE 231**

► Commercial wall system
A new commercial wall system from Abet Laminati has been granted three U.S. patents for the aluminum profiles supporting the panels, including the corner, end cap, and connector profiles. The system is based on a tongue-and-groove fastening system, where the aluminum profile is fastened to a wall and/or stud to provide the tongue and panels with a corresponding groove. The system offers the full range of Abet's laminates, from solid colors and textures to silk-screened designs. Various accessories easily hook into the grooves. Abet Laminati, Englewood, N.J. www.abetlaminati.com **CIRCLE 232**

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◄ Avoid "accidental intimacy"
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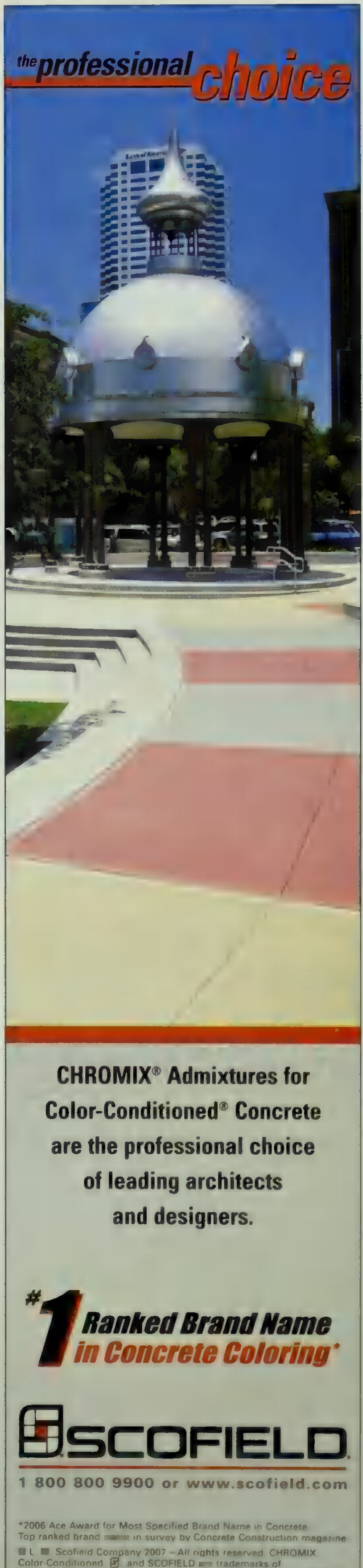
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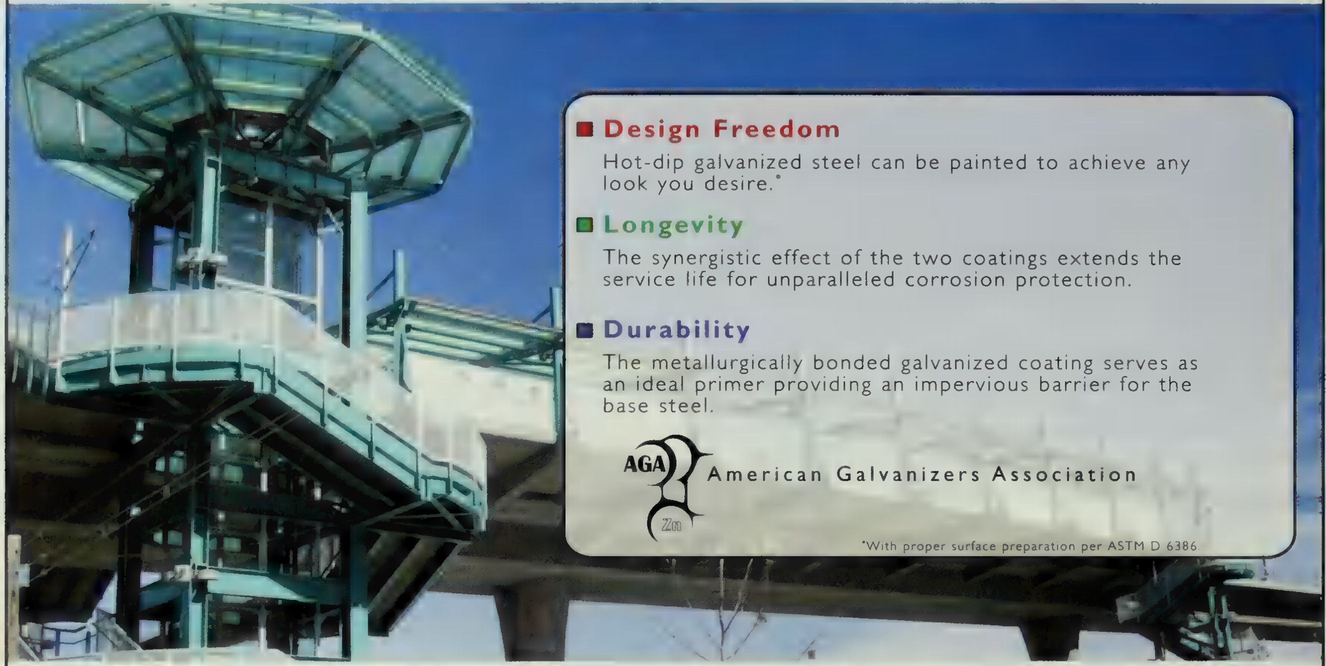

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Carpet company goals

This is Not a Carpet Company is a new sustainability brochure available from Tandus. The well-designed brochure is full of statistics, charts, and stories demonstrating the carpet company's goals toward becoming a better corporate citizen and environmental steward. Tandus, Dalton, Ga. www.tandus.com **CIRCLE 234**

Color concept palette

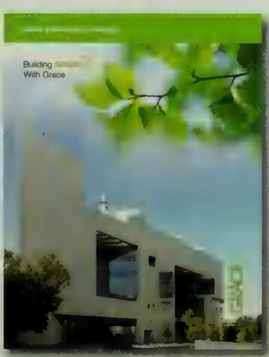
The new *Concepts in Color* paint palette by Sherwin-Williams enables users to easily select color from 250 new shades. The palette is organized into 10 color families and displayed on 3" × 5" paint chips. Suggestions for complementary interior and exterior colors are noted on the back of each chip. The entire collection can be previewed online using the *Color Visualizer* tool. Sherwin-Williams, Cleveland. www.sherwin-williams.com **CIRCLE 235**

Added dimensions

Resilient flooring manufacturer Azrock by Tarkett has launched a new design tool on its Web site called *Added Dimensions*. This tool allows designers, architects, and flooring contractors to customize Azrock's most popular homogeneous products by selecting the pattern, texture, tile size, and grout treatment. Tarkett, Houston. www.tarkett.com **CIRCLE 236**

Building green

Grace Construction Products, a worldwide leader in products for the construction industry, has introduced a new guide, *Building Green with Grace*. This guide helps architects and specifiers select products from the company that may help achieve points in the LEED green building rating system. Grace Construction Products, Cambridge, Mass. www.graceconstruction.com **CIRCLE 237**



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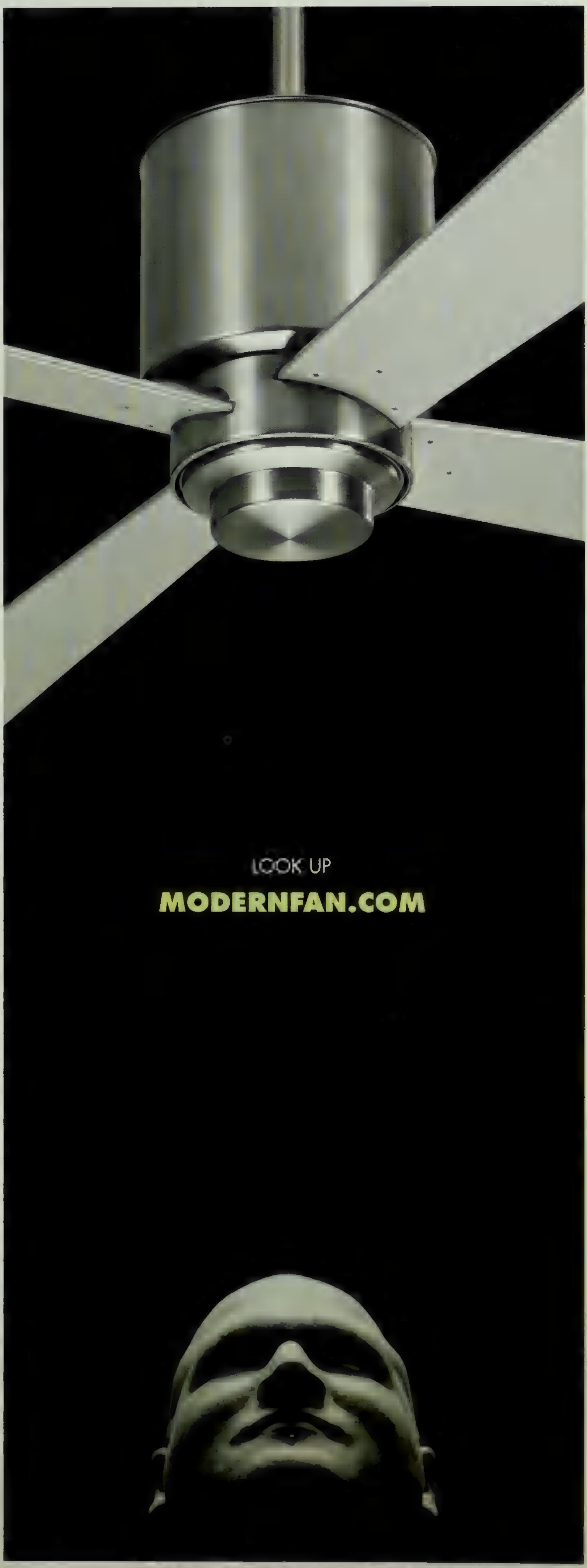

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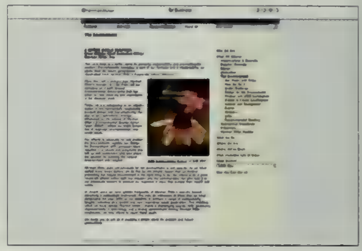
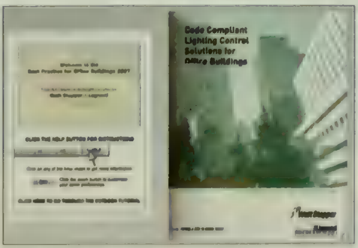


www.hermanmiller.com/environment
On its Web site, Office furniture and services provider Herman Miller has issued its first corporate sustainability report tracking the company's progress toward meeting key economic, social, and environmental objectives. The report, titled *The Journey Toward Sustainability*, is based on the company's 2006 fiscal year and focuses primarily on its North American operations.

www.todl.com
The Trade Only Design Library (TODL), a free online resource for architects, designers, facility managers, builders, stocking retailers, and other professional buyers, recently added listing information on specialty architectural products from Technical Glass Products (TGP). The site now features Pilkington Profilit channel glass, Neopariés stone glass panels, and TGP's new steel curtain wall and designer steel framing systems, along with Aquaglass, Veluna, and GlassOre decorative glass.

Juno Lighting Group
Nine great lighting brands are now available from a single source

www.junolightinggroup.com
Juno Lighting Group, a leading North American lighting manufacturer, launched a new Web site that combines product information for its nine leading brands in one comprehensive database. Each product includes a spec sheet, instruction sheet, IES files, product guide page, image, line art, and finish color swatches. The database allows users to effectively search for the best lighting solutions for commercial, industrial, and residential applications.


Code Compliant Lighting Control Solutions for Office Buildings

www.wattstopper.com/products/solutions/BestPracticeGuideMainPage.html Watt Stopper/Legrand's new e-book, *Best Practice Guide to Office Buildings 2007*, helps specifiers and building managers determine the optimal lighting-control solutions for office spaces that balance the needs to save energy, comply with building codes, and provide occupant satisfaction. The e-book features links to pertinent data including solution-specific product information as well as downloadable CAD drawings.

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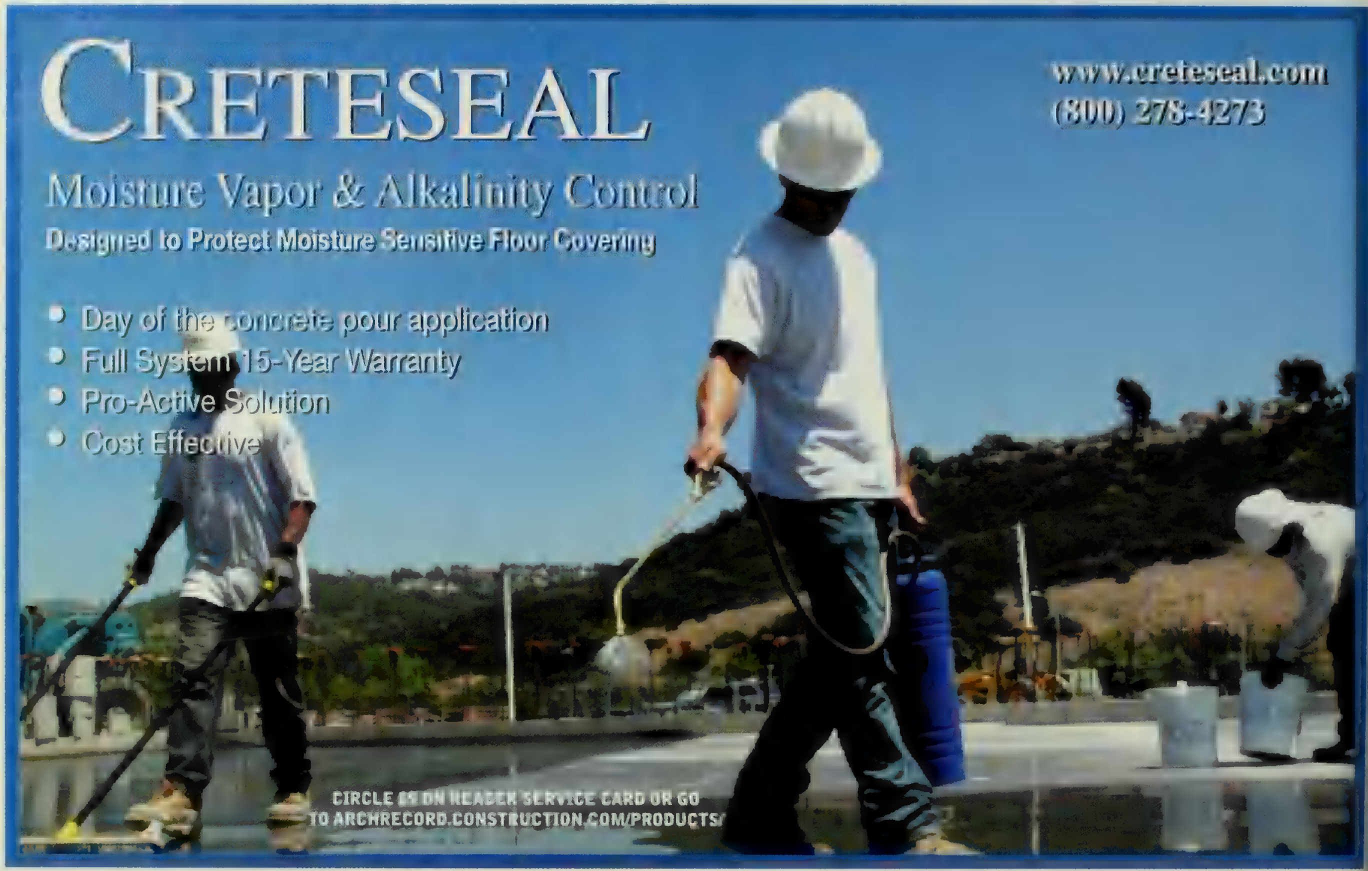

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Dates & Events

New and Upcoming Exhibitions

Lost Vanguard: Soviet Modernist Architecture, 1922–32
New York City
July 18–October 29, 2007
This exhibition examines Soviet avant-garde architecture in the post-revolutionary period. Although integral to the history of modern architecture, the featured projects have seldom been published and remain largely unknown. The exhibition highlights some 80 photographs by architectural photographer Richard Pare, who made eight trips between 1992 and 2002 and created nearly 10,000 images to compile a timely documentation of these structures, many of which are now in various states of decay, transformation, and peril. Pare's images are supplemented by Soviet periodicals to provide historical context for an exploration of this extraordinary architecture. At the Museum of Modern Art. Call 212/708-9400 or visit www.moma.org.

On a Grand Scale: The Hall of Architecture at 100
Pittsburgh
September 22, 2007–January 13, 2008
n celebration of the 100th anniversary of the Carnegie Museum of Art's Hall of Architecture, the museum will present an exhibition surveying its collection of nearly 150 plaster architectural casts that Andrew Carnegie created specifically for this magisterial space. At the time of the hall's inauguration in April 1907, the museum joined the ranks of prominent American museums exhibiting plaster casts of monuments from around the world. To ensure the hall's relevance to visitors, Carnegie surveyed architects of the day to determine which casts the museum would acquire. At the Heinz Architectural Center. For more information, call 412/622-3131 or visit www.cmoa.org.

30th Annual Fall Pilgrimage of Homes
Natchez, Miss.
September 29–October 13, 2007
With more pre-1860 buildings than any other city of its size in the United States, Natchez offers living history as hostesses in hoopskirts escort guests on tours through 18th- and 19th-century country houses, suburban villas, and grand mansions. For 30 years, Natchez has welcomed lovers of history, architecture and decorative arts during Natchez Fall Pilgrimage. Call 800/647-6742 or visit www.natchezpilgrimage.com.

Ongoing Exhibitions

Twenty + Change
Toronto
Through July 8, 2007
Twenty + Change is an exhibition of contemporary architecture, landscape, and urban design by 20 of Toronto's most innovative design practices. At the Gladstone Hotel. Visit www.twentyandchange.org.

Frank Lloyd Wright's Guggenheim Museum: Restoring a Masterpiece
New York City
Through July 8, 2007
This exhibition documents the ongoing restoration of Frank Lloyd Wright's architectural masterpiece on Fifth Avenue. The multimedia presentation includes photographs, drawings, computer-generated images, and videotaped interviews with key members of the restoration's design team and with Peter B. Lewis, lead donor for this restoration, as well as Mayor Michael R. Bloomberg, among others. At the

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Guggenheim Museum. For more information, call 212/423-3500 or visit www.guggenheim.org.

Honda Advanced Design Center
Los Angeles
Through July 8, 2007.
George Yu Architects' SCI-Arc Library exhibition. At The Southern California Institute of Architecture (SCI-Arc). Call 213/613-2200 or visit www.sciarc.edu.

AIA150

AIA/Los Angeles Design Awards Exhibit
Los Angeles
Through July 16, 2007
This show offers an opportunity for the public to experience and celebrate the quality and variety of Los Angeles Architecture, showcasing more than 350 Design Awards from 2007 and Next LA entries. At the Broad Art Center at UCLA. For more information, call 213/639-0777 or visit www.aialosangeles.org.

AIA150

Studio @ the Center: Lighting Design
New York City
Through August 4, 2007
This exhibition will highlight the work of 12 students from the High School of Art and Design who are taking part in the intensive after-school program that exposes them to one area of design through interaction with design professionals. At the Center for Architecture. Call 212/683-0023 or visit www.aiany.org.

The Park at the Center of the World: Five Visions for Governors Island
New York City
Through August 25, 2007
This exhibition features five landscape architecture and architecture teams competing to design compelling new open spaces for Governors Island. The teams presenting designs at this exhibition have received critical acclaim for their buildings and landscapes around the world. They were chosen from a field of 29 teams representing 10 countries and 65 firms, and they will compete to create a new park on Governors Island. At the Center for Architecture. For information call 212/683-0023 or visit www.aiany.org.

The Newhouse Program & Architecture Competition: 25 Stories for 25 Years
Chicago
Through August 25, 2007
In celebration of the 25th anniversary of the Newhouse Program & Architecture Competition, this exhibition will honor past and current participants. A series of specially commissioned photographs by Joe Wigdahl of alumni from the 25 years of the program will be in the John C. Buck Lecture Hall of the Santa Fe building. Call 312/922-3432 or visit www.architecture.org.

Reinventing the Globe: A Shakespearean Theater for the 21st Century
Washington, D.C.
Through August 27, 2007
This exhibition traces the longstanding fascination with the Globe Theater, in which many of Shakespeare's plays premiered, and the numerous efforts to evoke the spirit of that structure in subsequent theater designs. The show culminates with a series of hypothetical Shakespearean theaters for the 21st century, which suggest innovative strategies for bringing the playwright's work to modern audiences. At the National Building Museum. Call 202/272-2448 or visit www.nbm.org.

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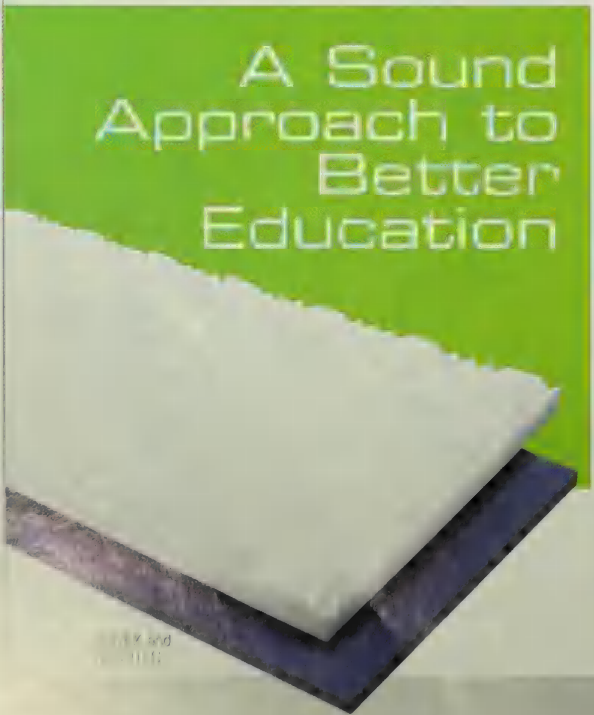

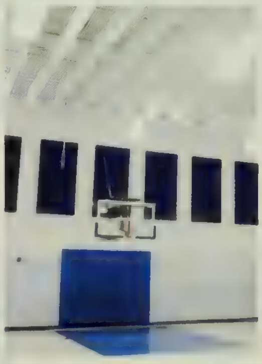

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Dates & Events

Young Architects Program
New York City
Through September 8, 2007
This exhibition features the proposals of the five finalists of the MoMA/P.S.1 Young Architects Program. Now in its eighth year, the program calls on emerging architects to create a temporary installation in P.S.1's courtyard, which will serve as the setting for the museum's summertime Warm Up series. The designers present engaging architectural solutions that modulate sun, shade, and water in this outdoor space. This year's finalists included Ball-Nogues (Los Angeles), Gage/Clemenceau Architects (New York), IwamotoScott (San Francisco), Mos (Cambridge, Massachusetts-New Haven), and Ruy Klein (New York). At the Museum of Modern Art. Call 212/708-9400 or visit www.moma.org.

Devil in the White City Tour
Chicago
Select Fridays and Sundays, through October 28, 2007
The tour is based on Eric Larson's best-selling book and focuses on two events: the World's Columbian Exposition of 1893 and the emergence of America's first serial killer to come to public attention. A slide presentation is followed by a bus tour of Prairie Avenue and Jackson Park with a visit to many buildings and places identified in the book. At the Chicago Architecture Foundation's ArchiCenter. For more information, call 312/922-3432 or visit www.architecture.org.

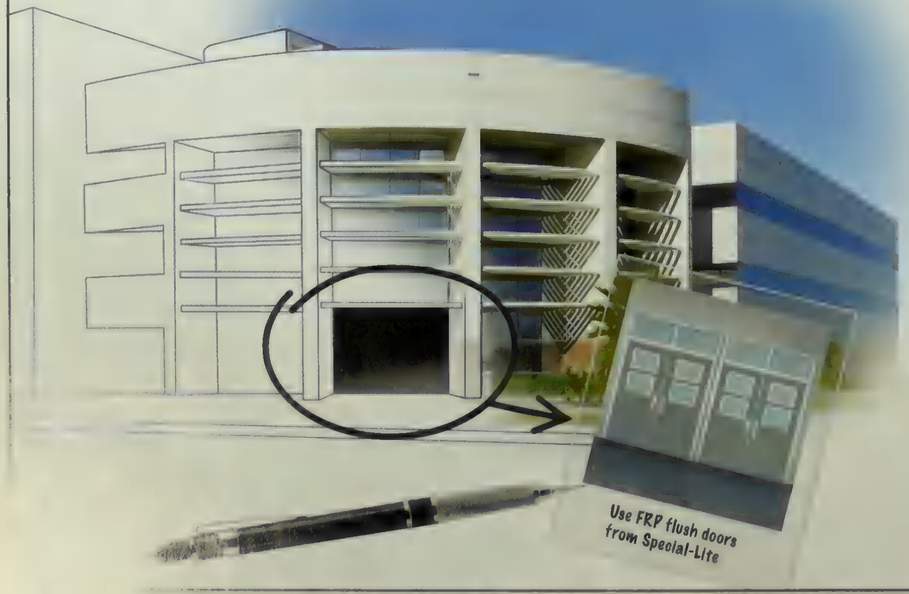
Lectures, Conferences, and Symposia

Talking Globally About Gardens
New York City
July 9, 2007
Donna Dorian, *Garden Design*'s Style Editor, will speak on Moroccan gardens. The same evening, garden writers Susan Lowry and Nancy Berner will present "Paris Parks." Dorian recently traveled to Morocco with landscape architect Topher Delaney to explore historic and contemporary gardens. Susan Lowry and Nancy Berner are the authors of *Garden Guide: New York City* (Random House).At Columbia University. These events are free but reservations are requested. For more information or to RSVP, visit www.ce.columbia.edu/landscape.

Sustainable Architecture Lunchtime Lecture Series
Chicago
July 10, 2007
Recent Work of Farr Associates will be presented by founding principal Doug Farr. At the Chicago Architecture Foundation. For more information, call 312/922-3432 or visit www.architecture.org.

Why Dubai?
New York City
July 18, 2007
A panel discussion explores the reasons why Dubai is the focus of this century's competition for the World's Tallest Building, just as New York and Chicago were the arenas in the 20th century. At The New York Academy of Sciences. Visit www.skyscraper.org/burjdubai.

Eric R. Multhauf Lunchtime Lectures
Chicago
July 19, 2007
Lecture and book signing for *Chicago's Urban Nature: A Guide to the City's Architecture + Landscape*, by Sally A. Kitt Chappell.



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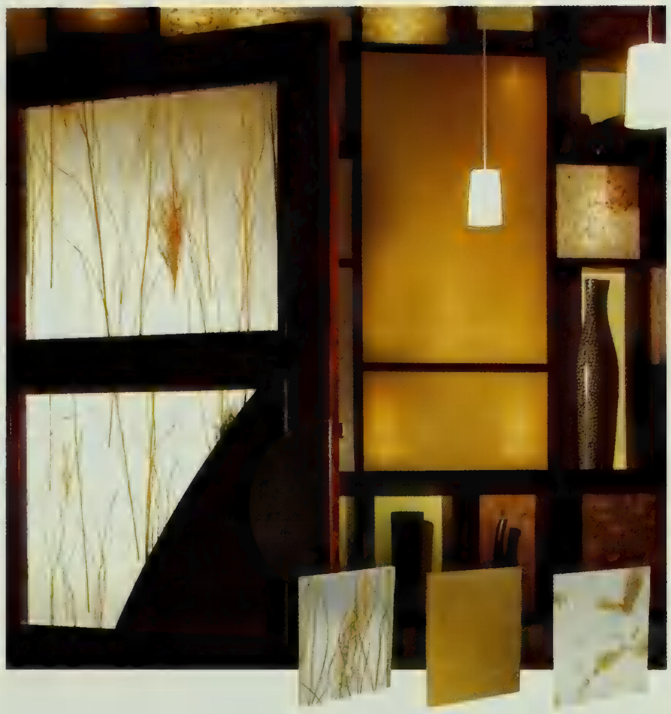

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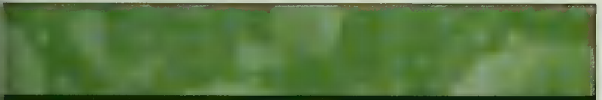

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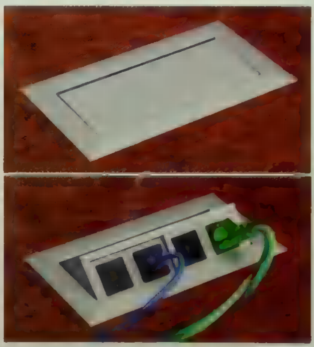

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Dates & Events

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Revealing the Brand Story: How to Create Meaning, Value and ROI Cambridge, Mass.

July 31–August 1, 2007

Recognizing the need for architects, developers, interior designers, and other related professionals to better understand the role strategic branding plays in delivering effective solutions for clients, Harvard GSD has developed this new program as part of its Executive Education summer line-up. The two-day program will be conducted through discussions, presentations, and case studies that will include project clients on-hand, and a team-guided work exercise that will be reviewed by clients and others. For more information, call 617/384-7214 or visit www.gsd.harvard.edu and search for RBS07.

Architecture Camp Pittsburgh

Through August 17, 2007

Architecture Explorations, a series of one- and two-week camps dedicated to architectural design, construction, form, and function, and presented in collaboration with Carnegie Mellon University's School of Architecture, are available for children ages four to 13, as well as high school students. The architecture camps are held at Carnegie Mellon University's architecture studios and in the Carnegie Museum of Art's Heinz Architectural Center. Call 412/622-3131 or visit www.cmoa.org.

Competitions

Design Trust for Public Space Call for Proposals

Deadline: July 27, 2007

New York City community groups and public agencies are invited to submit proposals for research, design, and planning projects that would benefit from private-sector expertise. Proposals must relate to the design or use of public space in the five boroughs of New York City. For more information, visit www.designtrust.org.

International Transit Design Competition

Registration Deadline: August 17, 2007

Submission Deadline: August 31, 2007

This ideas competition is intended to solicit innovative design solutions and dialogue about the possibilities for the role of public transportation in Columbus, Ohio, focusing on the passenger facilities and transit modes that will reconnect citizens, renew neighborhoods, and spark economic development. Visit www.columbusrewired.org.

Self-Sufficient Housing/ The Self-Fab House: 2nd Advanced Architecture Contest

Registration Deadline: September 17, 2007

An international summons to architects, designers, and students from around the world, inviting proposals for the construction of self-sufficient dwellings with an emphasis on exploring people's capacity to construct their own homes. Visit www. advancedarchitecturecontest.org.

Topeka Riverfront Student Design Competition

Deadline: October 5, 2007

An all ages student design competition to collect ideas for the development of Topeka's riverfront.

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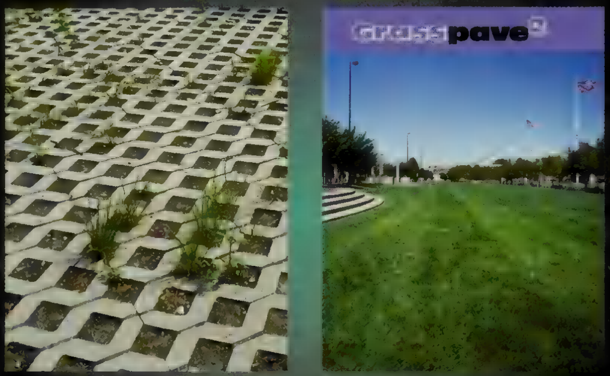

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There are three competition divisions: Kindergarten-6th Grade; 7th-12th Grade; and College Level. For information, visit www.reclaimourriver-topeka.org for more details.

AIA150

The American Institute of Architecture Students' (AIAS) 2nd Annual National Student Design Competition

Deadline: November 5, 2007

Developed for advanced students, this competition will challenge participants to design a pediatric outpatient rehabilitation center and family support facility utilizing architectural aluminum building products and systems. For more information, visit www.aias.org/kawneer.

Palladio Awards

Deadline: November 15, 2007

The Palladio Awards are named in honor of Andrea Palladio, the Renaissance architect who created modern architecture for his time while using models from the past. The program recognizes individual designers and/or design teams whose work enhances the beauty and humane qualities of the built environment through creative interpretation or adaptation of design principles developed through 2,500 years of the Western architectural tradition. Call 718/636-0788 or visit www.palladioawards.com.

Just Jerusalem

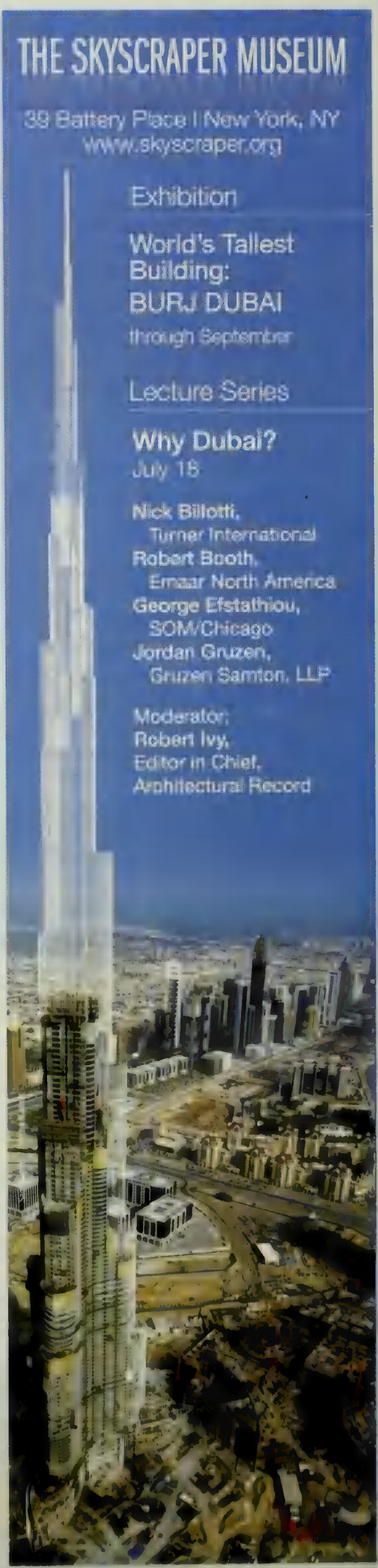
Deadline: December 31, 2007

This competition invites participants worldwide to submit urban plans and other creative works that consider novel ways to transform this fractious city into a place where contending ideas and citizenries coexist in peaceful ways. An international panel of diplomats, researchers, and professionals will jury the competition. The winning participants will be awarded fellowships at MIT, a prize equivalent to $50,000. Visit www.mit.edu/cis/jerusalem2050/.

Fourth Annual Extreme Redesign: The Ultimate 3D Printing Challenge

Deadline: December 31, 2007

A global design and 3D printing contest for high school and college students that awards scholarships to the winners. To enter the engineering categories, students need to identify an existing product and redesign it, making the original design better by adding new functionality or aesthetic qualities. For submissions in the art and architecture category, the emphasis should be on originality and the overall beauty or aesthetic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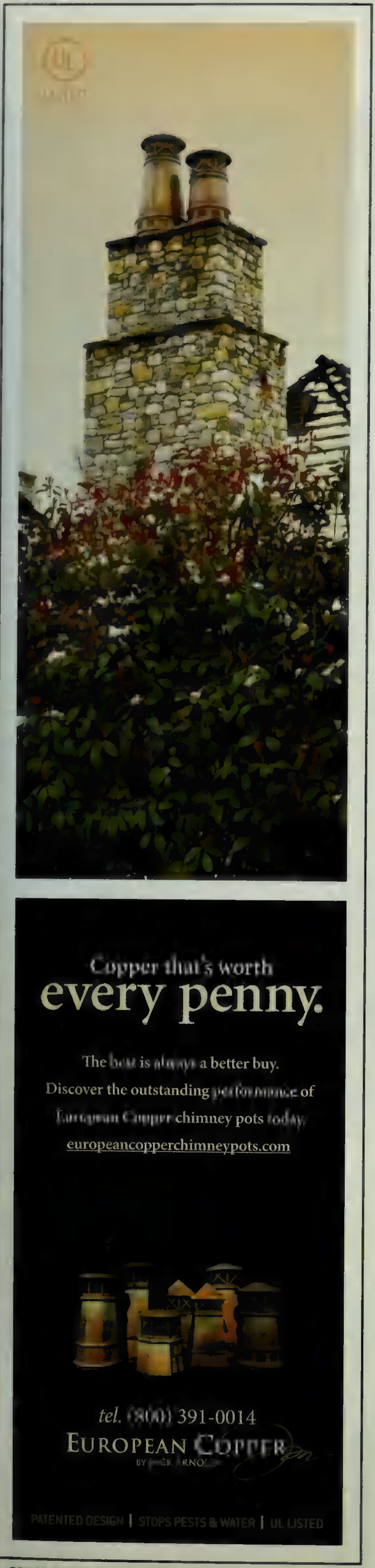

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Holcim Awards Competition

Deadline: February 29, 2008

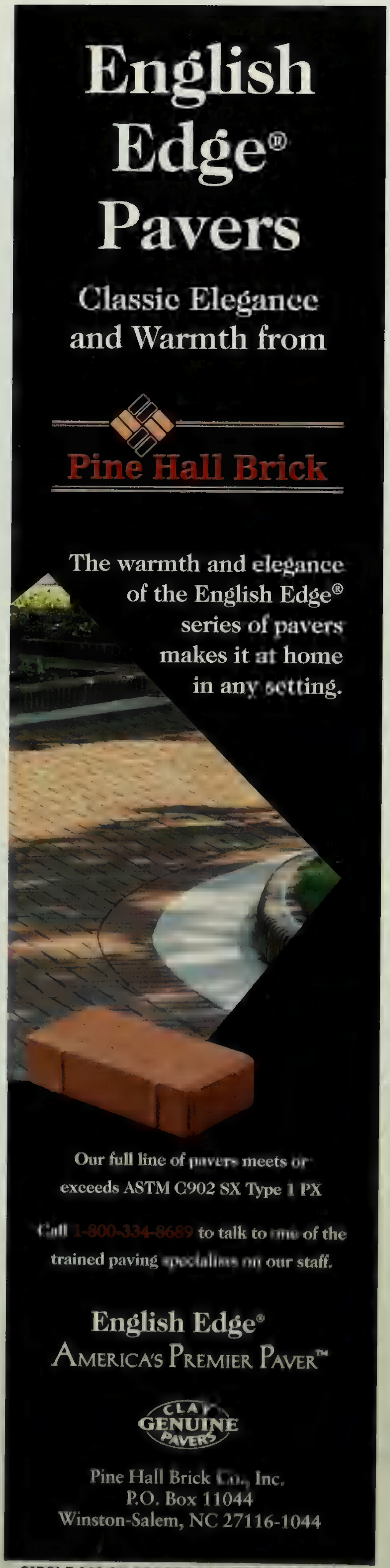
These awards are an initiative of the Swiss-based Holcim Foundation to encourage and inspire a built environment that goes beyond convention to address the challenges of sustainability. The global competition showcases sustainable responses to technological, environmental, socioeconomic, and cultural issues affecting contemporary building and construction. The awards are open to anyone involved with projects in the area of sustainable construction—architects, planners, engineers, or project owners. Call 41 58 858 82 92 or visit www.holcimawards.org.

Open Architecture Prize

Deadline: Ongoing

The $250,000 Open Architecture Prize is the largest prize in the field of architecture and is designed to be a multiyear program. Each year, a winning design will be selected from a field of low-cost, sustainable projects and built in a selected community. The first project will be an "e-community center," a centralized building equipped to enable an entire community to access the Internet. The winning designs will be built as part of the prize and in alignment with the 50x15 Initiative, a program founded to connect 50 percent of the world's population to the Internet by 2015. To learn more, visit www.50x15.com.

E-mail event and competition information two months in advance to elisabeth_broome@mcgraw-hill.com.



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The Fulton Street Transit Center, by Grimshaw Architects is one of the case studies that will be presented at *Architectural Record's* 2007 Innovation Conference.

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jary, with Ali Malkawi, Director, Chan Center for Building Simulation
nergy Studies, University of Pennsylvania

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ıced Facade Design, Marc Simmons, and Bruce Nichol, Front Inc.,
n Zahner, president of A. Zahner Metals,

ormative structures
k Hoberman, Hoberman Design

ower of Design to Affect Transformation
Van Deursen, of Van Deursen Innovation and Design

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Investigating the Art and Science of Glass and Light
-James Carpenter, principal of Carpenter Design Associates, and Davidson Norris, principals of Carpenter/Norris Consulting, Advanced Daylighting Systems

-Marilyne Andersen, PhD, Department of Architecture, at the Massachusetts Institute of Technology

Case Study: The Fulton Street Transit Center
-Andrew Whalley and Vincent Chang of Grimshaw Architects, with James Carpenter

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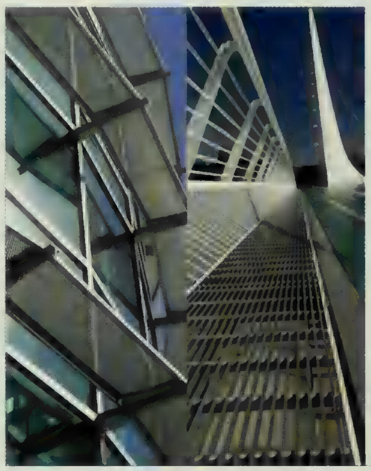
| Circle Reader Service #150

Perforated Metal & Metal Grating

Hendrick Screen Company



Setting a new standard for perforated metal and metal grating, Hendrick Metals offers unlimited applications including grating and grilles, curved grating, and facades, building sun shades, wall and ceiling cladding, column covers, railing in-fill panels, signage, custom interior panels, ventilation and aesthetic screening for building mechanicals and equipment. Contact Hendrick Screen at 270-685-5138.

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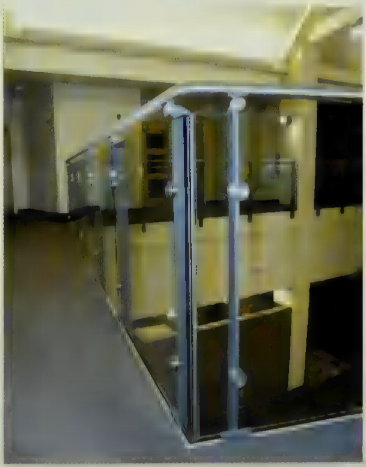
| Circle Reader Service #152

Railing System

Livers Bronze Company



The all-new Belmont is an economical railing system using steel bar posts with powder coat finish, adaptable to side or top mounting conditions. The top rail and 3/8-in. tempered glass panels mount to the post with machined aluminum fittings. Top and assist rails available in 1.5-in. diameter tubing with a wide selection of finishes. The Belmont is now available in stainless steel.

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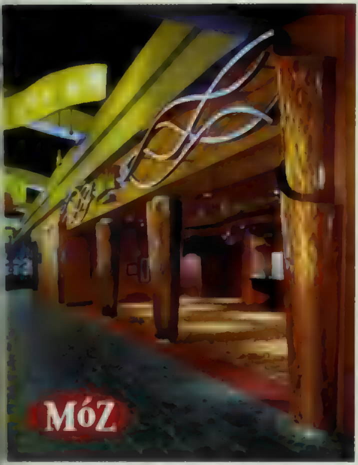
www.liversbronze.com

| Circle Reader Service #155

Column Covers & Wall Panels

Moz Designs, Inc.



Móz Column Covers and Wall Panel Systems are pre-fabricated to offer easy installation and come in a variety of shapes. Their products stand up to heavy traffic and are available with new durable Special Finishes. Móz offers 12 unique patterns and 16 standard colors. Custom architectural products are their specialty. Let their value engineering team transform your ideas and concepts into solutions for dynamic environments.

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Circle Reader Service #159

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Balustrade Systems

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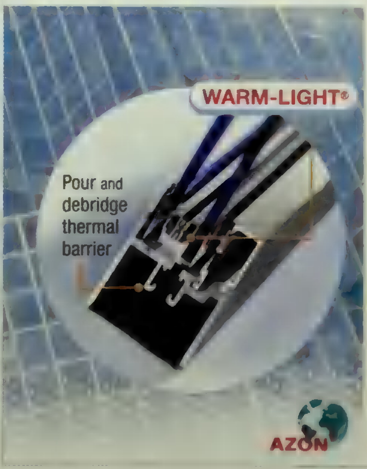
www.meltonclassics.com

Circle Reader Service #158

Extreme Performance Insulating Glass

AZON USA INC.



Warm-Light® spacer for insulating glass provides a more comfortable interior environment, reduces thermal conductivity and condensation on the glass surface while lowering utility costs. Azon is the global leader in developing technology for the manufacture of thermal barrier aluminum fenestration, commonly referred to as the pour and debridge method.

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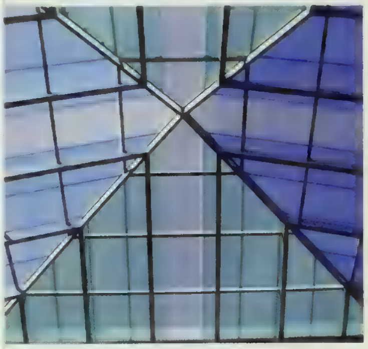
Circle Reader Service #161

Translucent Insulated Skylights

CPI Daylighting, Inc.



CPI is a world class leader in the design and manufacture of translucent insulated skylights. CPI's unique translucent polycarbonate standing seam glazing system provides more value for your construction dollar than most other translucent daylighting systems. CPI systems are made with Pentaglas® Tight-Cell technology, one of the latest and most advanced systems for architectural daylighting applications.

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| Circle Reader Service #162

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Gathering LEED points through daylighting can greatly impact any project. Kalwall's highly insulating, diffuse-light transmitting, translucent skylights, wall systems and replacement windows are uniquely suited to achieve the desired results. The use of Kalwall could contribute up to 20 points within the categories of Sustainable Sites, Energy & Performance, Materials & Resources, Indoor Environmental Quality, and Innovation & Design Process.

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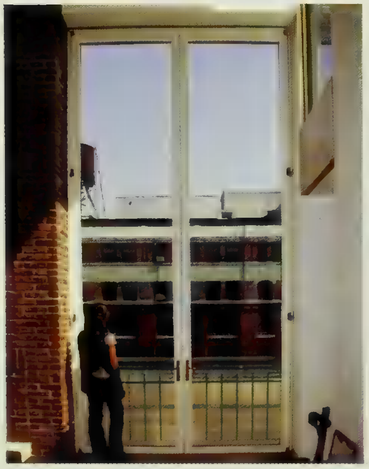
| Circle Reader Service #165

Versatile Windows

Fenevations, LLC



Fenevations manufactures MegaWood, Infinity Bronze, and SteelView windows. Megawood offers fine hardwoods with furniture-grade finishes, combined with heavy gauge bronze or hand welded, aluminum extruded exteriors. Infinity Bronze is a unique thermally broken solid bronze system offering beauty, style and traditional sightlines. SteelView offers stainless steel beauty for contemporary designs.

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www.fenevations.com

| Circle Reader Service #163

Movable Glass Partitions

Luconi-usa

Osso is a real biomechanical sculpture, characterized by the peculiar aluminum bar, which has the double function of supporting panels and pieces of furniture. It stands simply and securely, either by putting pressure between floor and ceiling or can be self-supporting in some configurations, offering a wide range of panels and materials for partitions, doors, furnished walls, closets, desks, bookshelves, drawers and containers. This pure, functional element, like a dress, finds space in applications such as homes, offices, retail, kitchens and bathrooms.

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From minimalist simplicity to stylish sophistication, HDI offers pull handles to suit every taste. Featuring nearly 60 distinct designs made from stainless steel, wood, glass and stone, you're sure to find a solution to your need. Many pull handles come in a variety of sizes, and the HEWI CombiSystem features a patented method of adjustment, allowing easy installation on existing doors.

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Convex Glass was produced and developed with the renowned architectural firms of Janson/Goldstein and Front Inc, in NYC. Convex Glass is the first real 3D Glass produced in geometric type patterns. Both surfaces are shaped so that dimensional viewing can take place from either side of the glass. Convex Glass can be produced in 1/4-in., 3/8-in., 1/2-in., 5/8-in. and 3/4-in. single layered panels up to 8'0 x 12'6, and can be safety tempered as well. Rectangular, square, and circle shapes can be produced. A unique method of casting allows panels to "fit like a glove", enabling successful resin laminating.

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| Circle Reader Service #171

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Oldcastle Glass

Featured on the Ritz-Carlton Club®, St. Thomas, StormGlass™ —an Oldcastle Glass® exclusive—was chosen after other products failed. One look at the laboratory test results and it's not surprising that StormGlass™ is the glazing of choice for hurricane-resistant applications. In independent testing, StormGlass™ met test requirements for large glass sizes of up to 50 square feet. That means the freedom to design larger glazed openings while meeting the most stringent codes for hurricane resistance. And StormGlass™ employs the industry's most advanced interlayer technology (the thinnest of its kind in the hurricane-resistant glazing market).

www.oldcastleglass.com

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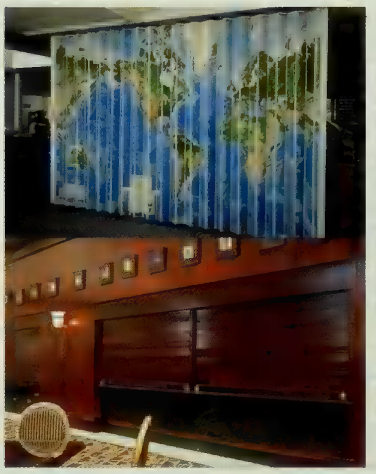
Doors for Interior Architecture

Woodfold Mfg., Inc.



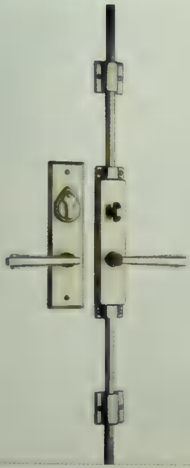
Some will say that nothing is more beautiful than wood. Woodfold Mfg., Inc. would agree. Woodfold Mfg., Inc. custom made accordion and roll-up doors (available in hardwood and non-hardwood finishes as well) are both functional and beautiful. Woodfold Mfg., Inc. has models available for use as sight, security, and acoustic applications. Its solid hardwood roll-up doors coil conveniently overhead. And, to assure on time completion of your projects, Woodfold Mfg., Inc. has the industry's best production cycle. Fax number 503-357-7185

503-357-7181
www.woodfold.com/AR

| Circle Reader Service #172

Cremone Bolt/Entry Set

Sun Valley Bronze



Elegant. Functional. Unique. The Sun Valley Bronze locking cremone bolt/entry set is now available for keyed exterior doors. Offered with any of their lever designs and in any of their eight beautiful finishes. Custom lengths, patio function and dummy function available.

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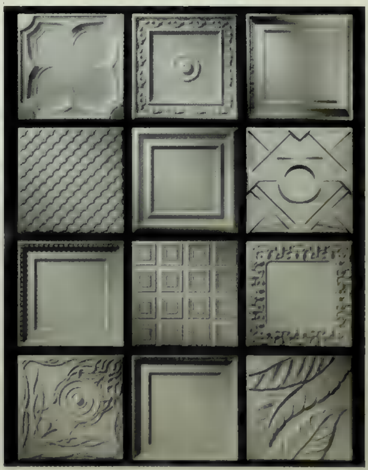
| Circle Reader Service #170

Ornamental Plaster Ceiling Tiles

Above View Mfg., By Tiles, Inc.



Above View ornamental plaster ceiling tiles are fabricated from a non-toxic, non-combustible, proprietary composition. They drop into any standard 15/16-in. T-Bar grid system. There are more than 50 standard designs, custom design work, and 1,300 custom colors and faux finishes available upon request.

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www.aboveview.com

| Circle Reader Service #173

Decorative Wall Panels

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frpDesign Solutions is a family of decorative wall panels that provides an alternative to traditional wall coverings such as ceramic tile, wood paneling or vinyl wall coverings. Offering both functionality and design, products in the frpDesign Solutions line are made of a moisture-resistant frp panel with a decorative finish that includes myriad colors, patterns, and woodgrains, as well as a tile-look panel. Available with over 500 choices, frpDesign Solutions is easy to install and maintain. For more information, visit Kemlite on the web.

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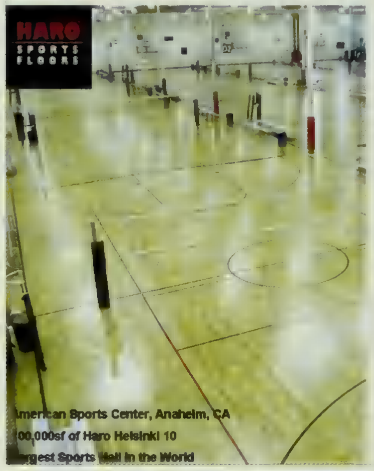
www.frpdesignsolutions.com

| Circle Reader Service #174

Sports Floors

Haro Sports Floors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| Circle Reader Service #175

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| Circle Reader Service #178

Vertical Surfacing

Gage Corporation, Intl.

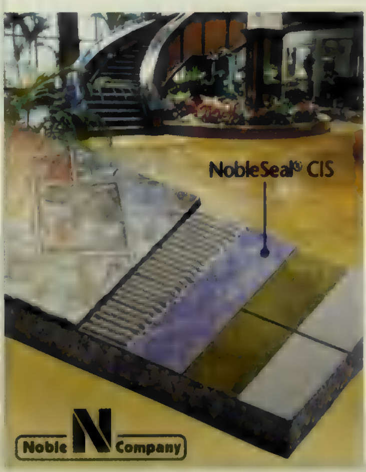
Gagecast® is a cast metal wall surfacing material suitable for a variety of interior architectural applications where patterns that feature high luster, relief, durability, and cost effective installation are a requirement. Twenty designs are standard; however, custom collaboration is encouraged. Gagecast® is one component of Gage Vertical Surfacing. Contact the factory for product literature and select samples.

800-786-4243
www.gageverticalsurfacing.com

| Circle Reader Service #176

Helps Prevent Cracked Tile

Noble Company



NobleSeal® CIS is a sheet membran that protects thin-set ceramic an stone tile from cracking. CIS can b used over common substrates includ ing primed gypsum underlayment and many wood sub floors. It's a prove performer with millions of square fee installed. CIS has been tested fo "System Crack Resistance" in accor dance with ANSI A118.12, and is rate "High Performance". Noble Compan also produces sheet membranes fo waterproofing and sound control. Fo more information, call 800-878-5788 visit www.noblecompany.com.

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| Circle Reader Service #17

Porcelain Floor Tiles

Viva Ceramica

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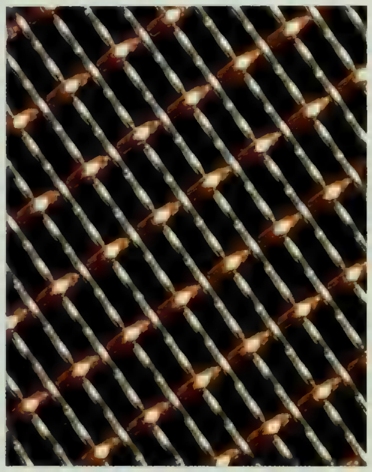
www.cerviva.it

Circle Reader Service [illegible]

Wire Mesh Systems

Gage Corporation, Int.



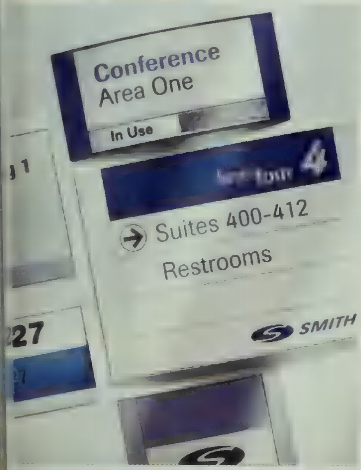
GageWoven® is a creative collection of 20 designs suitable for walls, elevator interiors, ceilings, and other architectural fabrication. Custom sizes and made to order panel systems are available. Custom designs are also encouraged. Contact the factory for literature and sample requests. Email gage@centurytel.net

800-786-4243

Circle Reader Service #183

Architectural Signage

APCO Sign Systems



For 40 years, APCO has been a leader in the design and manufacturing of modular sign systems. Their product line includes interior and exterior sign systems, directories, displays, sign-making software, and ADA-compliant solutions. Each line is backed with commitment, quality, and innovation. With headquarters and manufacturing in Atlanta, APCO has offices across the nation and worldwide.

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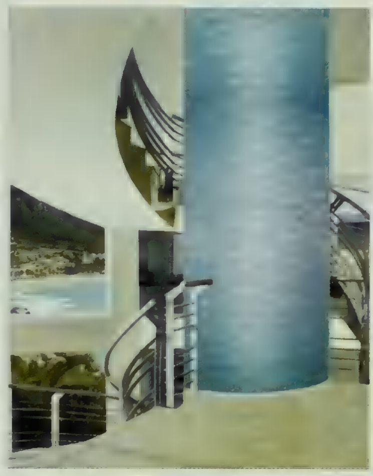
www.apcosigns.com

Circle Reader Service #181

Cascading Water Features

Harmonic Environments, Inc.



Harmonic Cascade™ water features can be specified for any size and almost any shape in a seamless panel. Cascading water has [illegible] luminous quality and privacy can be maintained. This feature holds light very well when projected onto the surface. Please visit www.HarmonicEnvironments.com or call 800-497-3529 to discuss your project.

800-497-3529
www.HarmonicEnvironments.com

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Circle Reader Service #182

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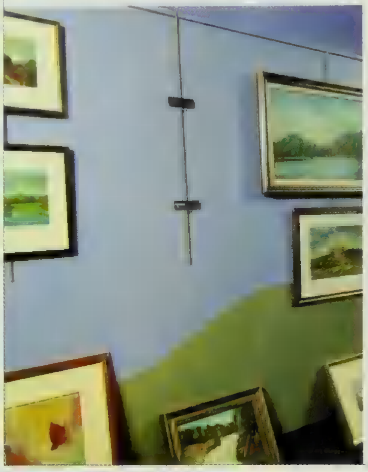
Art Presentation

Walker Display Incorporated



Life's all about change and so is Walker Display when it comes to art presentation. The Walker system frees you to explore all your options. No-More-Holes frees you to rearrange your artwork with ease and speed. Embrace change.

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Balanced design that is light and airy. Moving sculpture. The San Francisco ceiling fan—a GOOD DESIGN Award winner. Whisper quiet, powerful, reliable and beautifully made this timeless design is also available with a light kit and can be used on 8-ft. ceilings or on cathedral ceilings with optional downrods up to 6-ft. long. Suitable for sloped ceilings up to 29 degrees. Lifetime warranty. To buy high-design architectural fans and lighting please visit G Squared Art's web site or call them M-F 7 a.m. to 5 p.m. PST.

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| Circle Reader Service #189

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Modern Outdoor

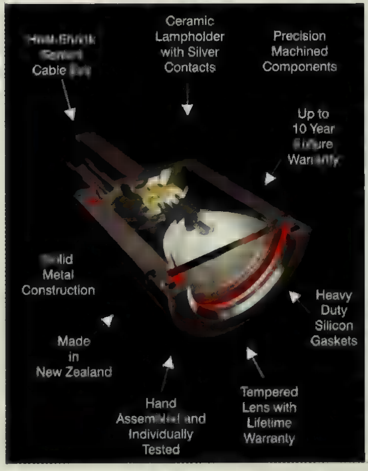
Premier provider, designer, and manufacturer of high-style, clean-lined, environmentally conscious outdoor furniture that is still made here in America. They offer four complete lines of furniture engineered for use in heavy commercial applications with the aesthetics for residential environments. Their lines include chairs, tables, benches, settees, stools, club chairs, sofas, ottomans, loungers, planters, bar carts, accent tables, and bar height products. They also offer custom work as pictured here with this communal table.

818-785-0171
www.modernoutdoor.com

| Circle Reader Service #187

Outdoor Lighting Fixtures

Hunza Lighting USA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To ensure that an outdoor lighting fixture will last the distance it is essential to use the best materials and pay careful attention to detail. Hunza combines simplicity in design with precision-machined components to produce low-voltage outdoor fixtures that will leave a lasting impression. Hunza offers the highest quality in path, deck, landscape, in-ground, underwater and wall mount fixtures.

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| Circle Reader Service #190

Saunas

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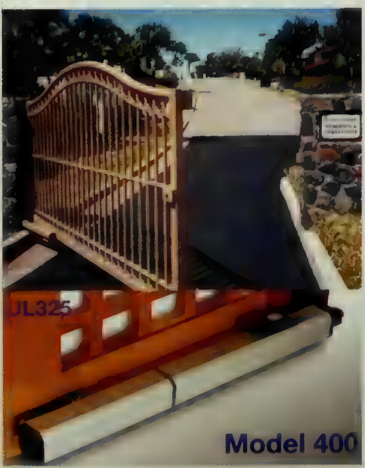

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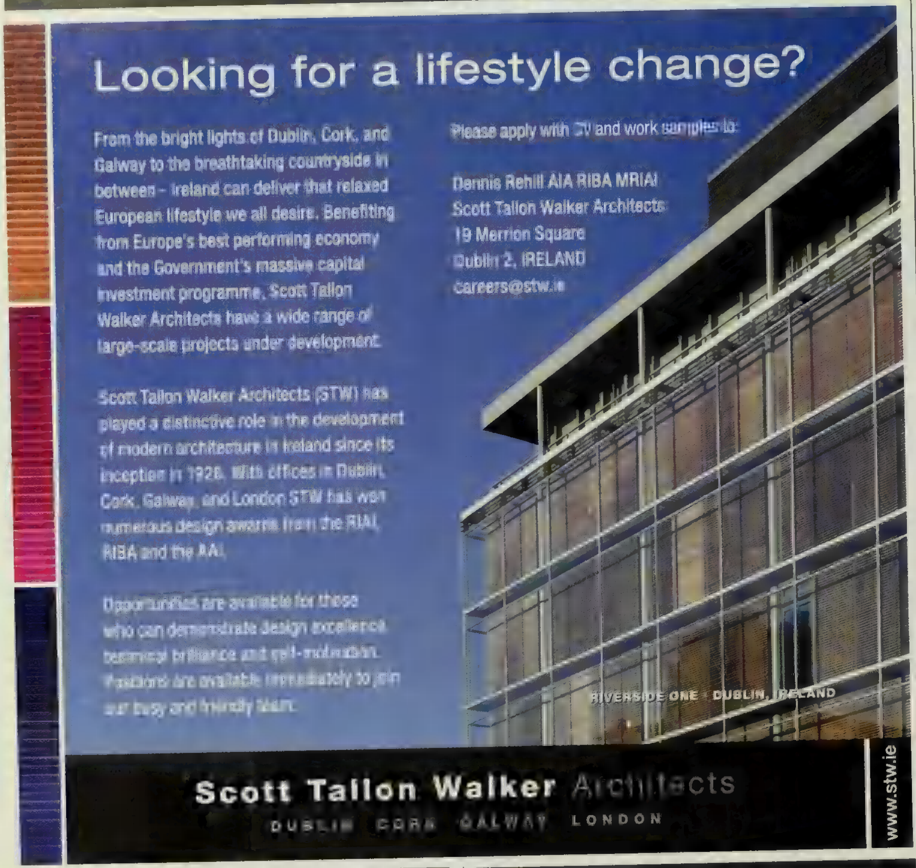

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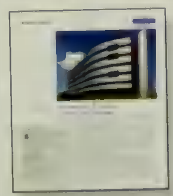

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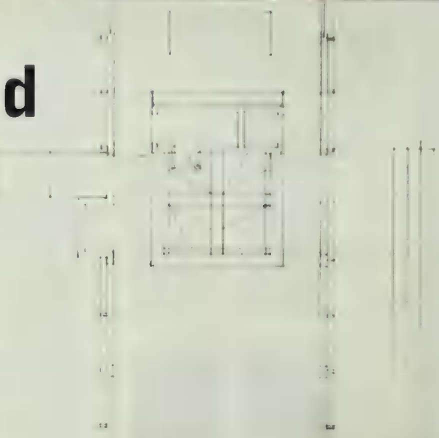

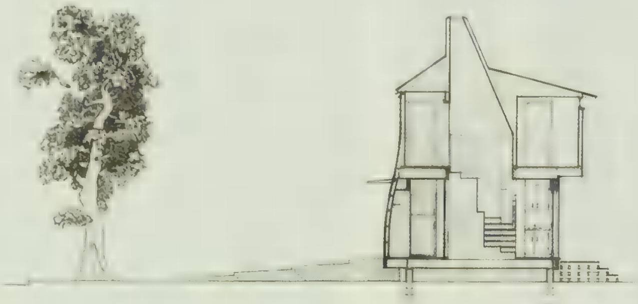

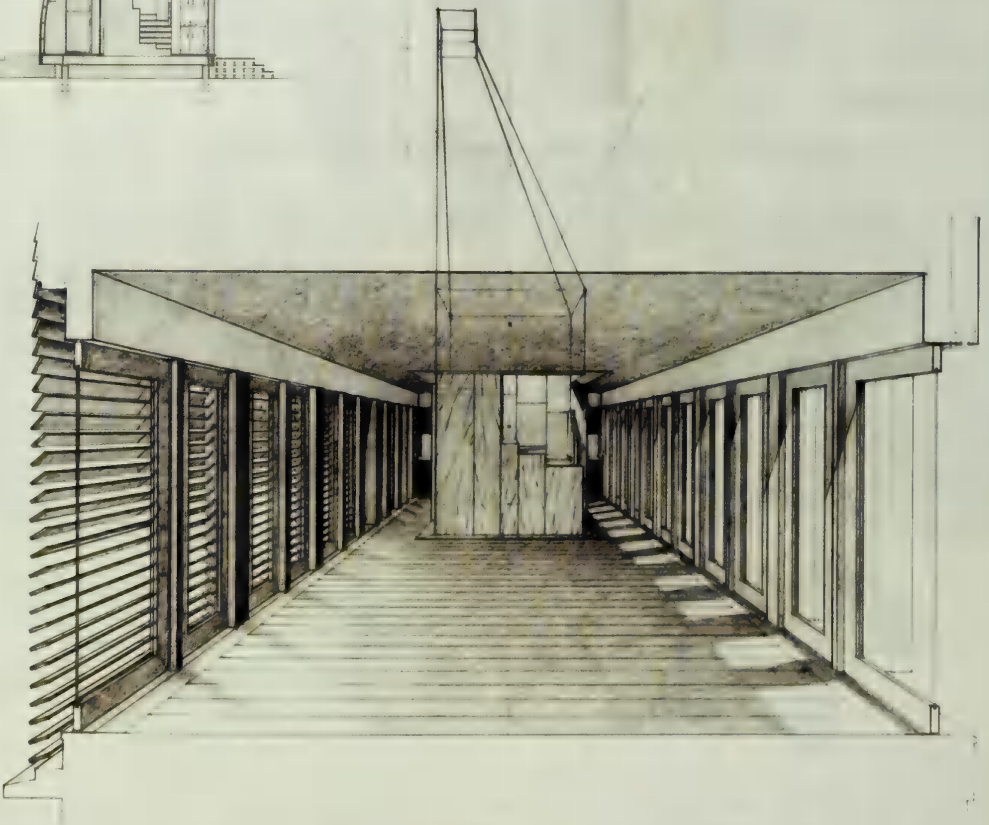

Mill Road House,
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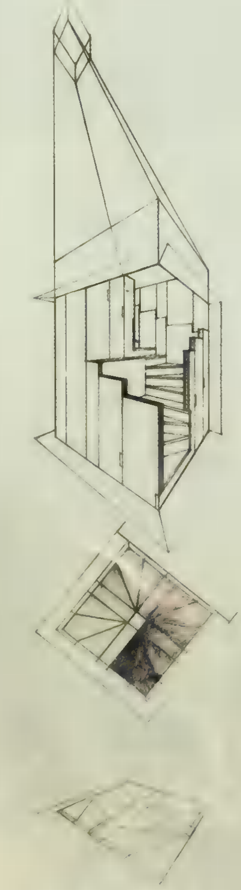
pencil on paper, 1994.



Office dA puts it down on paper

Monica Ponce de Leon and Nader Tehrani came of age as architects as the day-to-day practice of hand drawing for many designers was about to be snuffed out by computer graphics. When they formed their Boston-based practice in the early 1990s, they were just getting their feet wet with CAD. Today, Office dA, known for its precision of presentation and its fluency with both low- and high-tech methods of design and construction, employs a range of tools, like digital modeling and CNC milling. But it hasn't forsaken the art of putting pencil to paper. The Mill Road House, a speculative, unbuilt residence that won a Progressive Architecture award in 1995, was the first project the two worked on together professionally. Back in the old days, says Tehrani, he and Ponce de Leon drew everything themselves before opening up to the team. "There was a dyslexic moment in the studio when we didn't know how to engage with the staff," he says. "They would try to emulate what we were doing. That's not interesting. What needed to happen was for them to inherit an intellectual set of problems." Nowadays, Office dA's process is more collaborative: The two principals might be doing hand drawings as other members of their 13-person office work things out in CATIA, Rhino, or CAD. "Our drawings become didactic instruments," says Tehrani, "not only for building, but also for conceptualizing a project. We establish a relationship between drawing as a practice, geometry as a medium, and fabrication as its goal." *Beth Broome*

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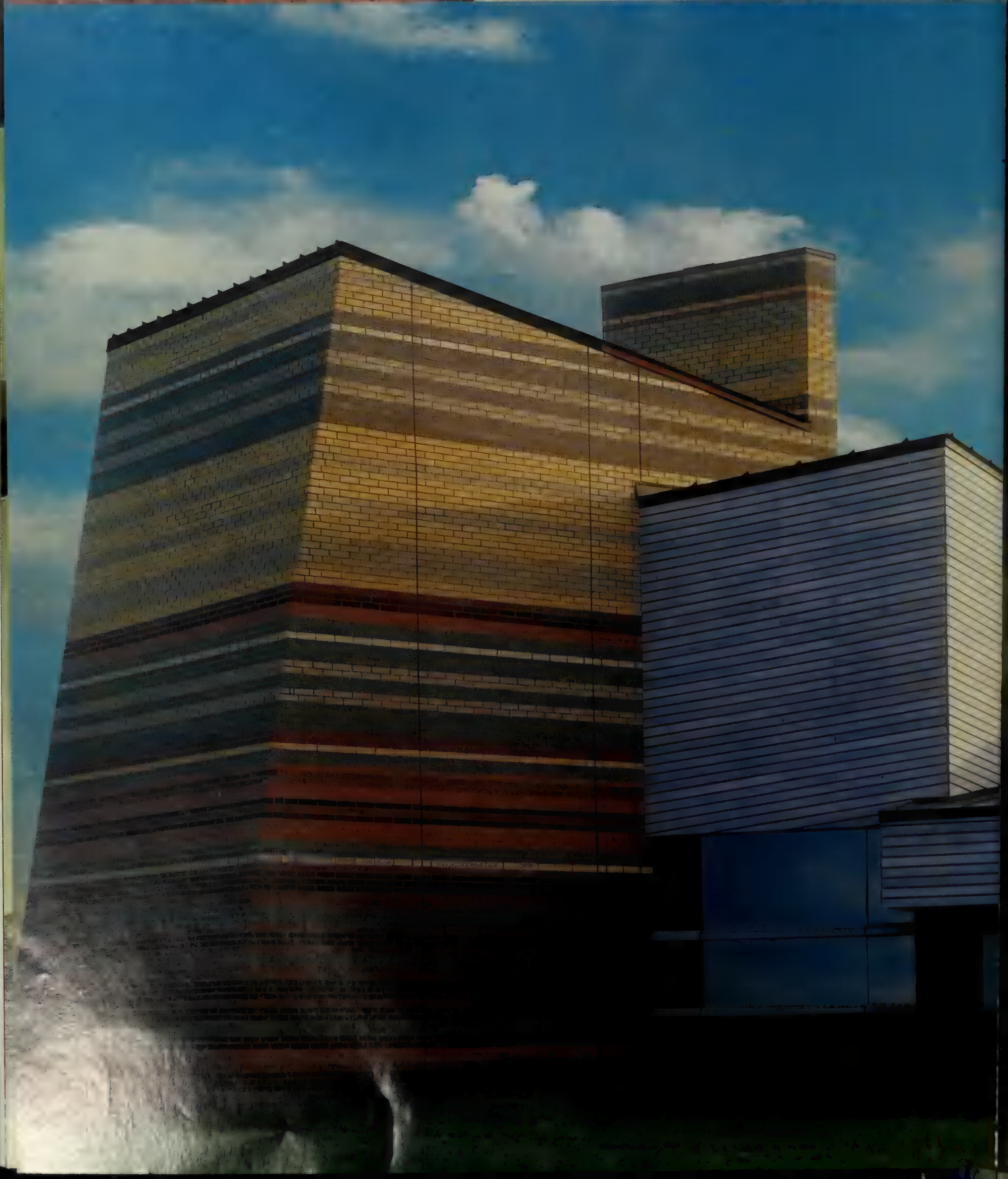

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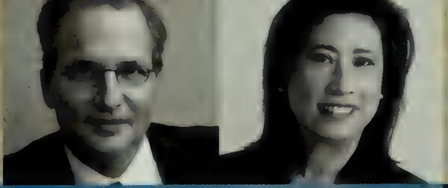

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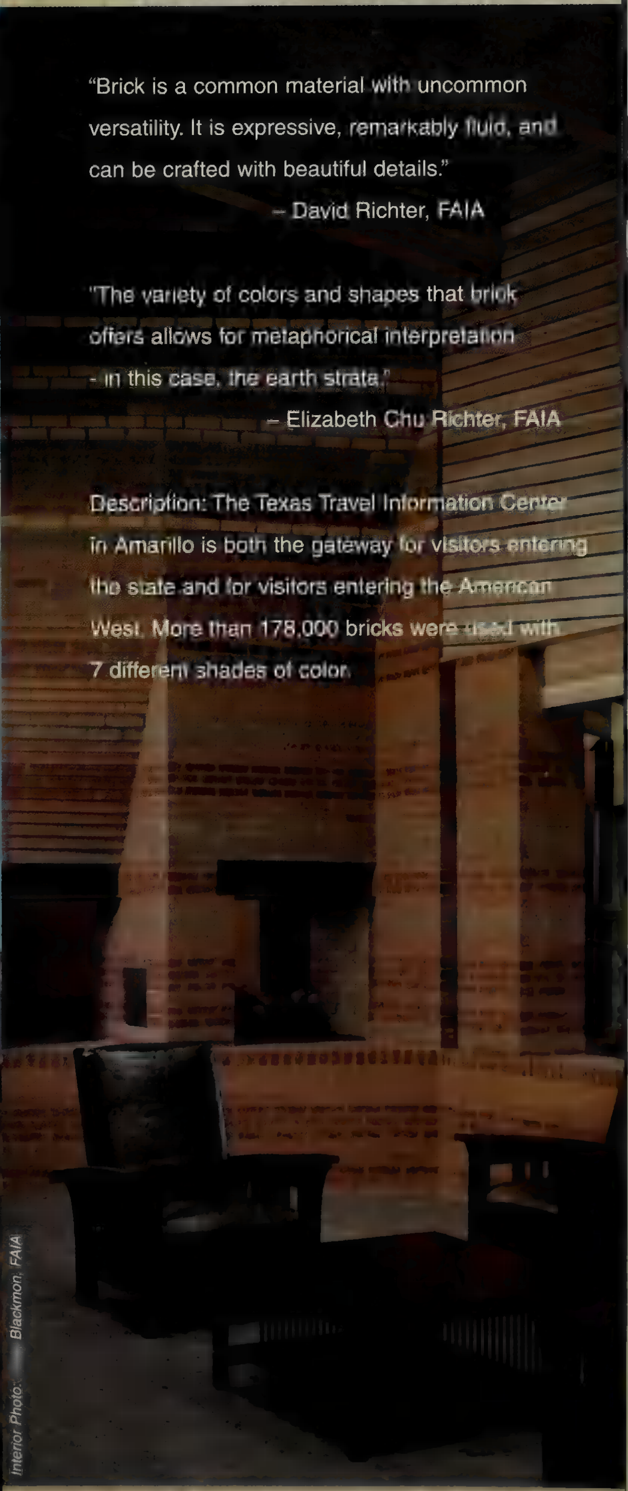

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NEWS EDITOR James Murdock, *james_murdock@mcgraw-hill.com*

DEPUTY ART DIRECTOR Kristofer E. Rabasca, *kris_rabasca@mcgraw-hill.com*
ASSOCIATE ART DIRECTOR Encarnita Rivera, *encarnita_rivera@mcgraw-hill.com*
ILLUSTRATOR I-ni Chen

PRODUCTION MANAGER Juan Ramos, *juan_ramos@mcgraw-hill.com*
COPY EDITOR Leslie Yudell, *leslie_yudell@mcgraw-hill.com*

EDITORIAL SUPPORT Linda Ransey, *linda_ransey@mcgraw-hill.com*
Monique Francis, *monique_francis@mcgraw-hill.com*
EDITORIAL ASSISTANTS Danielle Rago, *danielle_rago@mcgraw-hill.com*
David Sadighian, *david_sadighian@mcgraw-hill.com*
Jenna McKnight, *jenna_mcknight@mcgraw-hill.com*

CONTRIBUTING EDITORS Raul Barreneche, Robert Campbell, FAIA, Andrea Oppenheimer Dean, David Dillon, Lisa Findley, Sara Hart, Blair Kamin, Nancy Levinson, Jayne Merkel, Robert Murray, Andrew Pressman, FAIA, Nancy B. Solomon, AIA, Michael Sorkin, Michael Speaks, Ingrid Spencer

SPECIAL INTERNATIONAL CORRESPONDENT Naomi R. Pollock, AIA
INTERNATIONAL CORRESPONDENTS David Cohn, Claire Downey, Tracy Metz

WEB DESIGN Susannah Shepherd, *susannah_shepherd@mcgraw-hill.com*
WEB PRODUCTION Laurie Meisel, *laurie_meisel@mcgraw-hill.com*

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VICE PRESIDENT, MEDIA SALES	Paul Bonington, *paul_bonington@mcgraw-hill.com*
DIRECTOR, MARKETING COMMUNICATIONS	Deborah Smikle-Davis, *deborah_smikle-davis@mcgraw-hill.com*
VICE PRESIDENT, CIRCULATION	Maurice Persiani, *maurice_persiani@mcgraw-hill.com*
DIRECTOR, CIRCULATION	Brian McGann, *brian_mcgann@mcgraw-hill.com*
DIRECTOR, CREATIVE SERVICES	Susan Valentini, *susan_valentini@mcgraw-hill.com*
PRODUCTION MANAGER	Stephen R. Weiss, *stephen_weiss @mcgraw-hill.com*
ACCOUNT SERVICES, CONTINUING ED.	Robyn Feller, *robyn_feller@mcgraw-hill.com*
DESIGN SERVICES	Angela Haliski, *angela_haliski@mcgraw-hill.com* Matthew Healy, *matthew_healy@mcgraw-hill.com*
DIRECTOR, SALES, PRODUCT NEWS	Janet McLiverty, *janet_mcliverty@mcgraw-hill.com*
DIRECTOR, FINANCIAL OPERATIONS	Ike Chong, *ike_chong@mcgraw-hill.com,*
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ASSOCIATIONS: Charles Fagan - phone: (212) 904-2547 Fax: (312) 233-7488 Email: charles_fagan@mcgraw-hill.com

TECHNOLOGY: Mark Glasner - phone: (415) 357-8191 Fax: (415) 357- 8005 Email: mark_glasner@mcgraw-hill.com

WORKFORCE/RECRUITMENT: Gilda Falso - phone: (212) 904-2422 Fax: (212) 904-2074 Email: gilda_falso@mcgraw-hill.com, Diane Soister - phone: (212) 904-2021 Fax: (212) 904-2074 Email: diane_soister@mcgraw-hill.com

PRODUCT NEWS SPOTLIGHT: Deidre Allen, phone: (609) 426-7738 fax: (609) 426-7136 Email: *deidre_allen @mcgraw-hill.com* Kameesha Saunders, phone: (609) 426-7703 Fax: 609-426-7136 Email: *kameesha_saunders@mcgraw-hill.com*

INTERNATIONAL

GERMANY: Martin Drueke - phone: (49) 202-27169-12 Fax: (49) 202-27169-20 Email: *drueke@intermediapartners.com*
ITALY: Ferruccio Silvera - phone: (39) 022-846716 Fax: (39) 022-893849 Email: *ferruccio@silvera.it*
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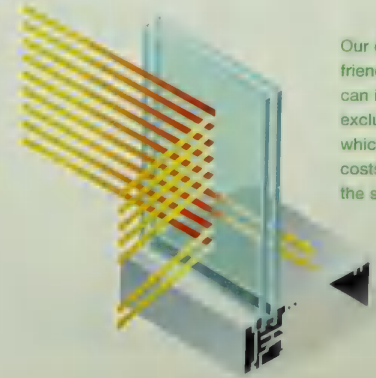

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Company business model emphasizes working with building teams "upstream" in the design process

CENTRIA Contributes to Building Teams

What makes a building team member valuable? For CENTRIA—the U.S.'s premier supplier of architectural metal wall and roofing systems—the secret is turning the "what if" into "what is." This is accomplished through a dedication to quality, aesthetics and strong working relationships with architects, owners and contractors alike. Over the course of CENTRIA's rich history, the company has come to realize how these components work together to make them the leader in the design, engineering and manufacturing of architectural metal wall and roofing systems.

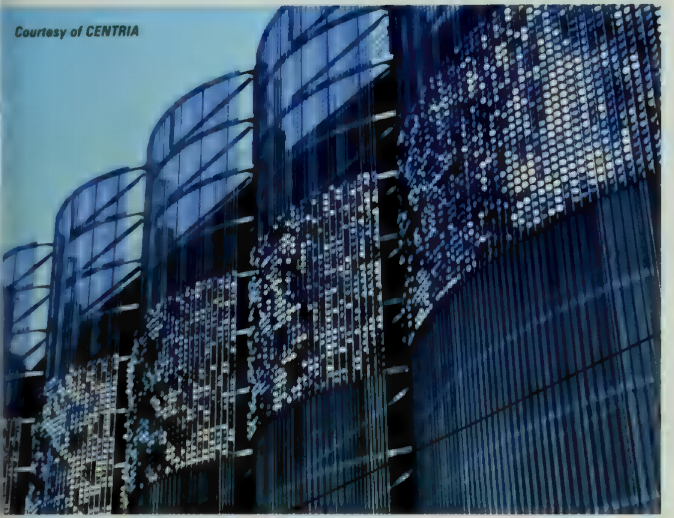
Working "Upstream"

No building project can ever be executed without the work of building teams. As such, CENTRIA believes in working in concert with architects, owners and contractors throughout the entire building process, from design concept to installation and erection. Close collaboration ensures everyone has a firm grasp on cost data, produc specifications, design capabilities and installation methods. This widespread integratio early on saves time and money in the long run and often sparks creativity as multipl minds working together are always better than one. By embracing this "workin upstream" philosophy, CENTRIA has helped turn architects' visions into realities.

Customer Inspired Products = Quality

CENTRIA's wall and roof systems are manufactured in Arkansas and Kentucky plant and its two coating plants, located in Pennsylvania and Ohio, are capable of applyin most coatings in virtually limitless color selections. The company is lauded fo providing quality, versatile materials while always exploring new possibilities. Many o these products are a direct result of collaborative efforts with the building team mentioned above.

For example, CENTRIA's Formawall® Dimension Series® metal wall panels wer inspired by listening to building teams (typically through conducting surveys and focu groups) who sought a product offering aesthetic customization, versatility and grea



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ɜrformance. This product line addresses all of these needs as the only wall system 'oviding both advanced thermal efficiency and moisture control in a single panelized ›mponent. It also offers the strength and durability to withstand drastic climate ıanges while still providing designers virtually unlimited aesthetic options in terms of rm, color and texture.

Similarly, CENTRIA's Formawall® Graphix Series® metal wall panels were ɜsigned with building teams in mind, allowing the multi-panel designs envisioned by chitects with single panel performance. Graphix Series is a single wall panel made look like several smaller panels. This unique segmented construction makes the ɜsired performance achievable and installation economical, while still allowing ɜsigners unlimited combinations of new design possibilities.

ward Winning Innovation

ːNTRIA's wide array of quality products didn't happen overnight. It was formed, in ɟ96, by bringing together the former E.G. Smith Construction Products, Inc., Steelite, c., and H.H. Robertson companies. As CENTRIA, the company offers more than a ɜntury of combined experience in engineering, manufacturing, and constructing ›nresidential, architectural, industrial, and institutional metal buildings.

One of the company's most notable building construction breakthroughs was the amed-in-place metal wall system which provides superior thermal performance and otection against moisture and air infiltration. Today the company's research and ɜvelopment of Advanced Thermal and Moisture Protection (ATMP) systems is ading the architectural metals industry in effective air, water and moisture otection. In addition, these systems offer an aesthetically pleasing surface, as well efficient installation.

CENTRIA also invests in providing AIA Continuing Education System credits, as ell as product training for building teams to help all parties understand why its oducts are designed the way they are—all part of a collaborative process.

eyond Green Leadership

ːNTRIA is not one to rest on its laurels. As a leader in the industry, the company has ɜcome a pioneer of sustainability. The basic intent behind sustainability is to move inking beyond the "green" initiatives of environmental conservation to a broader ıderstanding that encompasses other factors such as waste, toxic emissions, social ıplications and economic considerations.

To further the company's sustainability efforts, CENTRIA works to achieve Cradle to Cradle certification for its products. This certification process, conducted by McDonough, Braungart Design Chemistry (MBDC), evaluates a material or product's ingredients and the complete formulation for human and environmental health impacts throughout its lifecycle. It also verifies the potential of a product for being truly recycled or safely composted. Certification of a finished product also requires the evaluation of energy-use quantity and quality (i.e., relative proportion of renewable energy), water-use quantity, water-effluent quality, and workplace ethics associated with manufacturing.

CENTRIA's Formawall Dimension Series architectural foam insulated panel was the first-ever exterior wall system to earn Cradle-to-Cradle Silver Certification; Versawall® industrial foam insulated panels followed, achieving Silver Certification; and EcoScreen™ stainless steel perforated screenwalls was later awarded Gold Certification. Using a Cradle to Cradle certified product can now earn innovation points under the LEED certification program.

These environmentally conscious systems use manufacturing processes that limit the impact on human and environmental health, minimize water energy usage and reduce scrap waste. Additionally, their total system designs help conserve raw material consumption while providing outstanding thermal efficiency and effective moisture control.

CENTRIA's commitment to all of the above topics—customer collaboration, innovation, quality products and sustainability—allows it to provide solutions for building teams while contributing to their bottom line. What more can you ask of a building team member?

King's Daughters Medical Specialties, located in Portsmouth, Ohio, features CENTRIA's Formawall® Graphix Series® metal wall panels. These panels achieved the look of a multi-panel design, but with a single wall panel.
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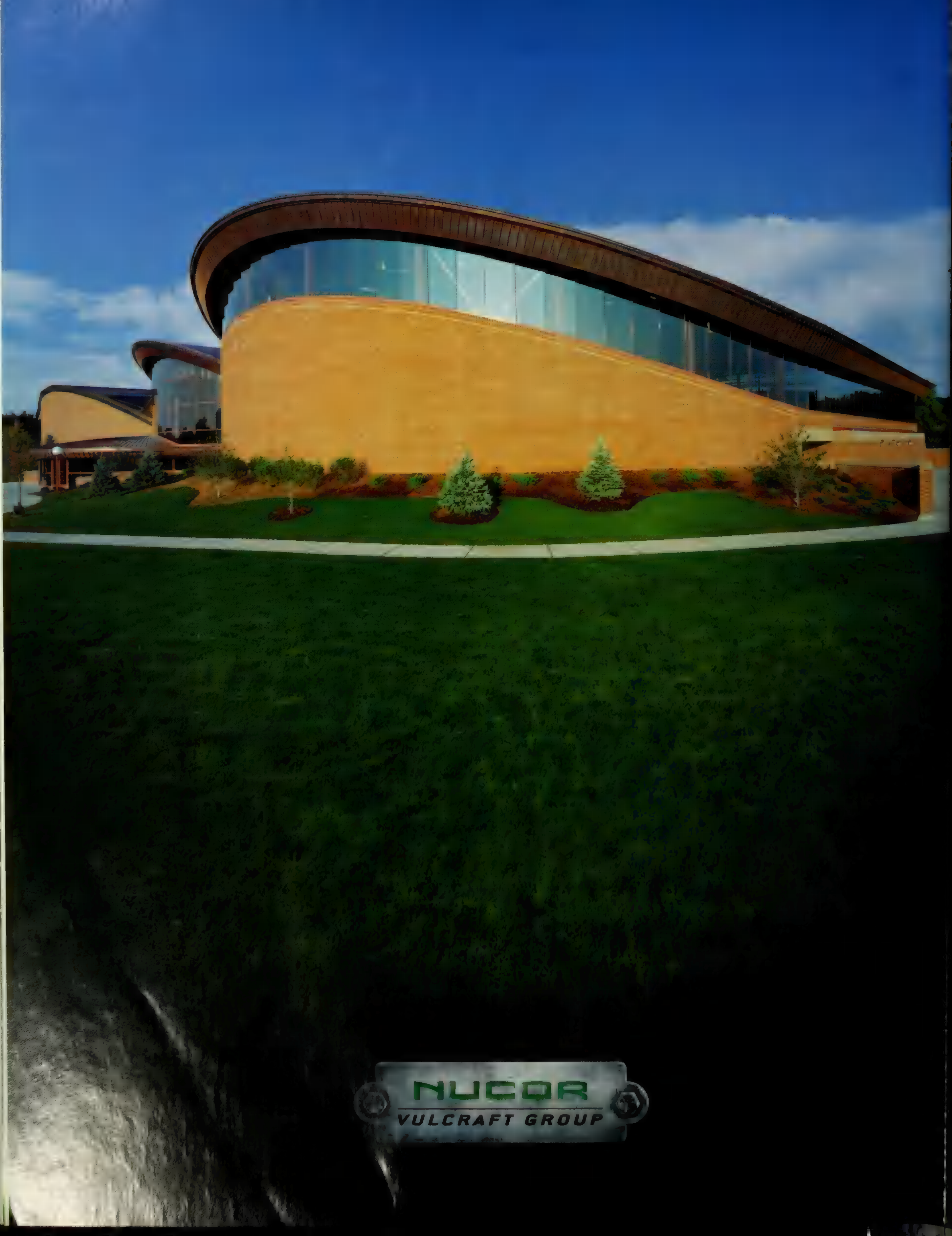
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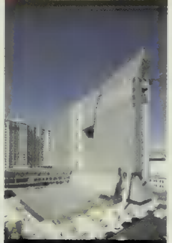
building types study: tall buildings

Unresolved issues not withstanding, we are awash in new skyscrapers. But the typology's reenergized career banks on one of two design strategies: go really tall or technologically dazzle—like Sports City Tower in Doha (left). Exclusively online, we present eight tall buildings that prove our point.



project portfolio

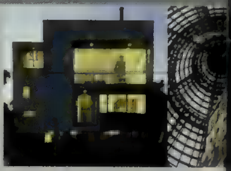
The "spectacular" architecture routinely featured in RECORD and on architecturalrecord.com relies more than ever on the ingenuity and creativity of the contemporary engineer. San Francisco's Federal Building (left), Bangkok's airport, Portland's aerial tram, and Lufthansa's Frankfurt headquarters all embody the principles of the new engineer.

lighting section

Designers of architectural lighting are redefining buildings' necessary connective tissue with moments of poetry and delight, such as the installation at Wu Jiao Plaza, Shanghai (left). While their makers' motivations differ, these three featured projects underscore infrastructure's artistic potential.

community

photo gallery



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comments

"I'm glad to see that architecture is finally coming alive in Harlem. The neighborhood is so unique and elegant, and now the architecture is truly going to reflect that uniqueness—bravo!"

and more ...

residential: house of the month

Exclusively online: A small guesthouse by Waggonner & Ball Architects (below), done as a modern version of the dog-trot prototype, becomes the main course, as the clients fall in love with the home and decide it's just right for weekend escapes.

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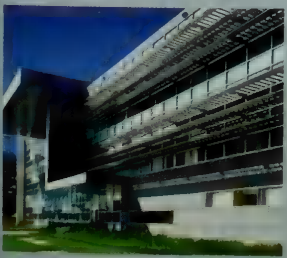

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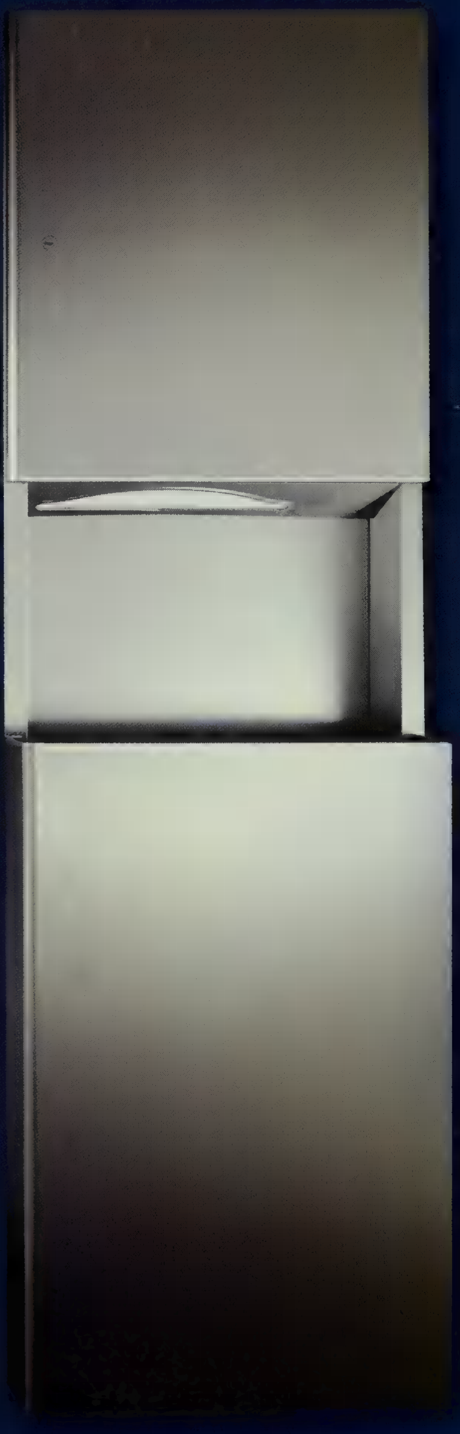

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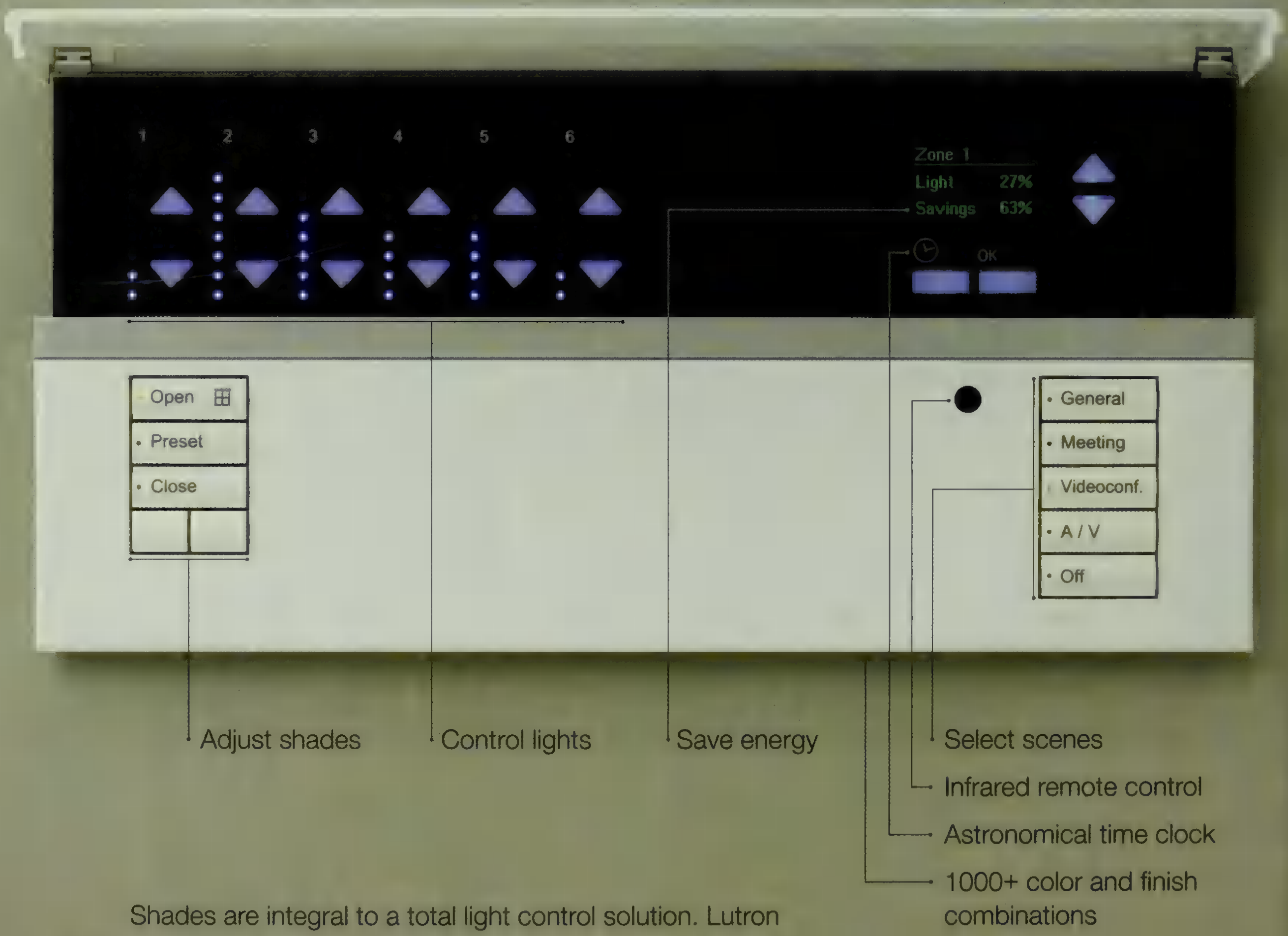

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The last word

Editorial

By Robert Ivy, FAIA

In the 18th century, Dr. Johnson asserted the critic's role to skewer "delusive combinations, and distinguish that which may be praised from that which can only be excused." Excuse me! In the linked-in, blog-bursting 21st century, aren't we all critics? Thankfully, the distinctions of language, between "gourmet" and "gourmand," hold fast, and some writing still warrants savoring, not merely devouring.

Since the mid-1980s, Martin Filler has contributed a medley of long critical essays on architects and architecture to The New York Review of Books. *A new book by that publisher released on July 17 collects and updates Filler's essays in a single offering entitled* Makers of Modern Architecture: From Frank Lloyd Wright to Frank Gehry. *Arriving in time for the dog days, Filler provides something to sink our teeth into. Delicious!*

Uniquely, his collection features the author's textual critique (responding to the written matter of other critics, the architect him/herself, curators, or writers), and his reviews of exhibitions and their accompanying texts, as much as reflections on any one architectural project. Filler's essays consist of a rich amalgam of biographical analyses, emphasizing each individual's career trajectory, with some formal analysis of the architects' built work. Refreshingly, he avoids too much of the latter, preferring to delve into matters often unexplored in the popular press. Along the way, we encounter quotable quotes, aperçus, digressions, obsessions, professional sympathies, categorizations, personal prejudices, pronouncements, analogies, refutations, as well as political and social observations, and a rich, fulsome exercise of the English language.

In our superficial era, when architectural criticism gasps for column inches in the newspapers, and blogs woefully lack erudition or research, Filler's assessments in The New York Review *stand apart, eschewing fashion and offering polished, carefully edited and backed-up, though highly personal, assertions. If his subjects seem more familiar than the architect du jour, comprising a selective roster of 20th-century masters, Filler's razor-sharp mind and sharper tongue set him apart. We gobble up what he thinks, as well as how he serves it up.*

For those seeking a point of view, he rarely disappoints: Strong opinions pepper almost every page. Filler's admiration and approbation go to architects like Sullivan who search for, and occasionally attain, higher social and philosophical ideals. Wright was "the supreme master builder of the 20th century." Mies gets a multicolored assessment, both revisionist and admiring, as a thwarted heroic figure, whose followers could not match the master's own gifts. Aalto remains "the most underappreciated giant of the Modern Movement." Filler's insight on Louis Kahn, whom he declares with the assurance of Miss Jean Brodie extolling Giotto, "the world's leading midcentury architect" (could you say that?), includes the historian Vincent Scully's role in promoting Kahn's work. He (Scully) "needed a present-day hero to fit his narrative."

Sometimes the critic tilts too deeply into a specific conversation better answered elsewhere, and thereby illustrates one of the weaknesses of the book: Our expectations exceed the essays, which were originally conceived for another audience at the more temporal Review*—an assertion particularly evident as we read Filler on Berlin's Reichstag, here conflated into a discussion of the city and the architect Norman Foster. Never mind. We read on.*

Gleefully, the critic relishes a genuine disembowelment—with an aim at eviscerating Samuel Johnson's aforementioned "delusive combinations"—such as the excesses of Postmodernism, or the ersatz Modernism that occurred in the wake of the International Style. Like many social critics, Filler hates cronyism and sycophants of any stripe, particularly certain architects and fellow critics guilty of such venality. He gets the last word.

Philip Johnson sits squarely in his sights for some of those reasons. One chapter begins: "If, as the philosopher Francis Bacon wrote, 'The monuments of wit survive the monuments of power,' … then Philip Johnson might be remembered by future generations after all."

Filler derides Johnson's personal qualities ("born salesman" and "glib improviser," as well as a Nazi sympathizer who got off light) as those of a man who changed his architectural styles as if changing a suit to match the moment. Johnson, his intimate circle, and the Museum of Modern Art, an institution in which Johnson held formidable power, form subtexts throughout the book, appearing in several essays, clearly a fascination, if not minor obsession, of this New York–based writer.

Whom does he list or leave out? In the course of 300 pages, he engages 17 architects, including the Eamseses (positive review) and Calatrava (less sanguine), but manages to omit Robert Stern, Peter Eisenman, and Michael Graves, all 1980s rock stars, as well as a shopping list of current galactic lights such as Zaha Hadid, Rem Koolhaas, Jean Nouvel, and Thom Mayne. You might wish for a more complete overview, as gossipy and fact-filled, as anecdotal and opinionated as this book can be. Too idiosyncratic a taste? Too hot? Some will spit it out. Ultimately, Filler's engaging book entertains and informs as it opines; then the language ceases, leaving us hungering for more of this piquant, yet savory intellectual dish.

Robert Ivy

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Letters

Seeing the light

I was astounded to behold the cover of your July 2007 issue. It wasn't the architecture, although that was reasonably attractive: another Post Form Z building featuring people along a faceted wall that glowed white against the night sky. In fact, I wouldn't have noticed the basic problem if it wasn't trumpeted by a tag line that took my breath away for its insensitivity: "Steven Holl lights up the skies of Kansas City."

Excuse me?! How out of touch can RECORD be? With all due respect to the work of a renowned architect, I cannot imagine a more regrettable comment given the concerted efforts worldwide to end light pollution. How is it that a leading publication would glorify the one aspect of a particular work that is perhaps better left alone? Allow me to suggest a look at DarkSky.org. Sustainable design is no longer a fringe movement or a passing fad. As a prominent publication, try to be a little more conscious about what's worth passing on to our fellow architects and, indeed, our children.

—Joseph Cincotta, AIA
Wilmington, Vermont

Gaining from loss

I am writing to express my admiration for many of the thoughts conveyed in Robert Ivy's June editorial, "Interpretive" [page 23], especially the need for understanding the value of—and acting to preserve—Modern architecture. I was shocked to learn of the demolition of Rudolph's Micheels House this spring under circumstances similar to those of Wright's Little House II. As we have witnessed time and again, it often takes a major architectural loss to breed appreciation, but it is truly unfortunate when such lessons do not carry forward. As Ivy states, many works of Modernism are, as yet, underappreciated in terms of preservation. Thankfully, organizations such as Docomomo go a long way in drawing attention to this situation, as do Ivy's fine "Interpretive" editorial and the magazine's "Historic Encounters" issue.

—Debra Pickrel
New York City

Rousing the critic

Robert Campbell's "Critique" in the July 2007 issue ["Calling a truce in the style wars over government buildings," page 53] is depressing and disappointing. The role of the critic is to shape opinion, not avoid it—doubt must be left to the artist. Campbell's view borders upon nihilism and does not advance our understanding of the current state of architecture.

—James A. Gresham, FAIA
Tucson

Corrections

A news story about memorials [July 2007, page 34] failed to mention that Ghiora Aharoni partnered with Stamberg Aferiat Architecture to design a 9/11 memorial for St. Vincent's Hospital in Manhattan. The story also mischaracterized the Logan Airport memorial as being focused around a "Palace of Remembrance." It should have read "Place of Remembrance."

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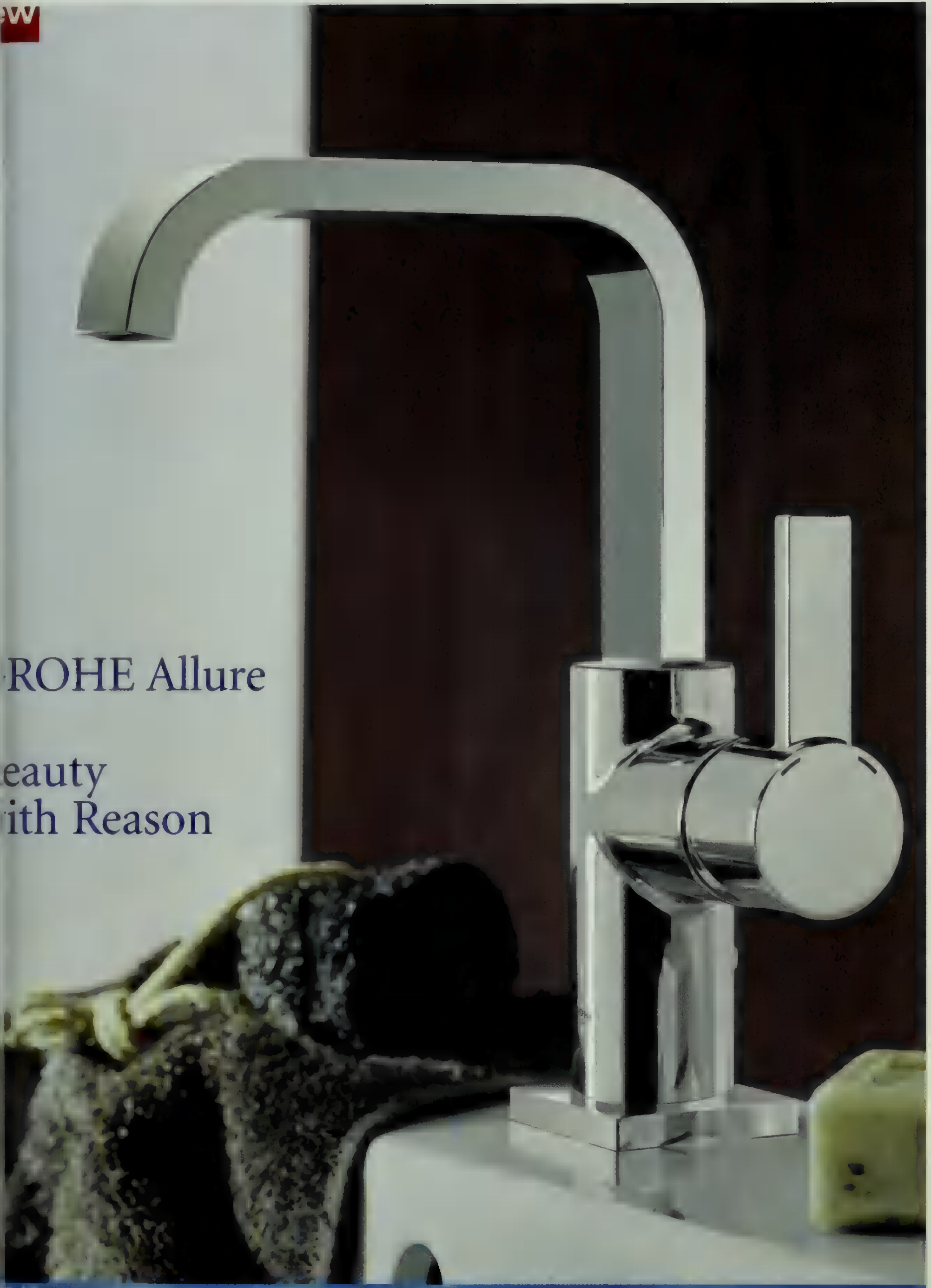

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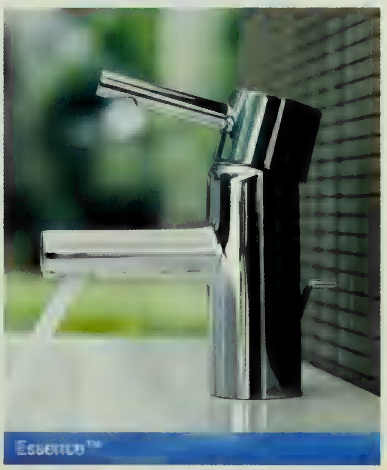

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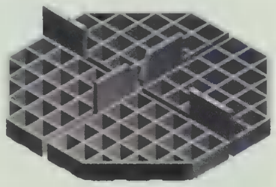

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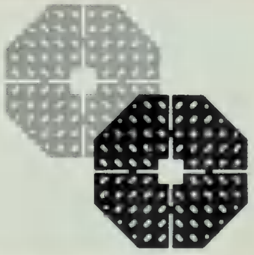

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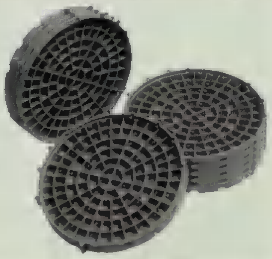

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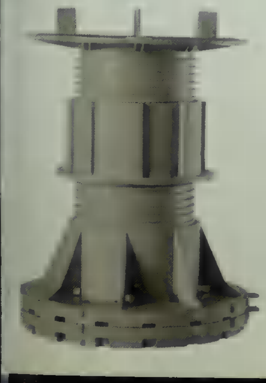

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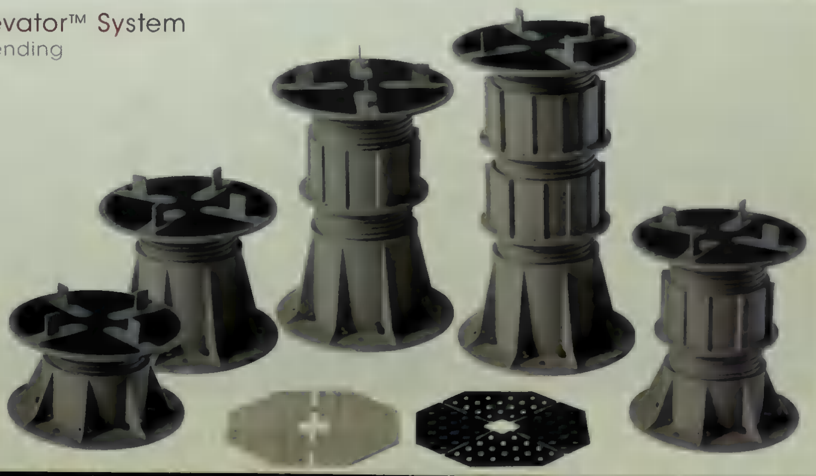

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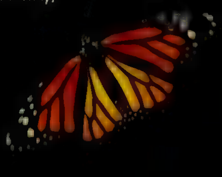

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Record News

Inside the News

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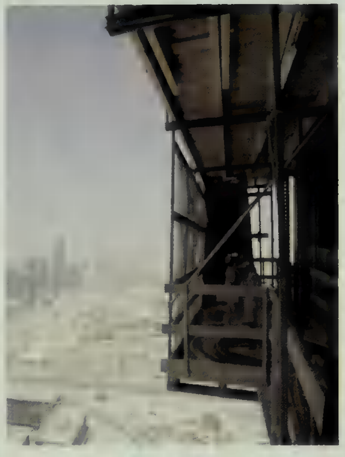
Blood, sand, and tears: Worker abuse alleged in the U.A.E.



The remarkable development boom in Dubai and Abu Dhabi, both located in the United Arab Emirates (U.A.E.), is completely transforming these cities' skylines and attracting the world's top architects. But it is also exacting a serious cost. Human Rights Watch (HRW) alleges that the migrant workers vital to constructing these projects are subject to "abusive labor practices"—and architects, it contends, are complicit in the problem.

In a report titled "Building Towers, Cheating Workers," published last November, HRW catalogued a host of abusive practices including nonpayment of wages, squalid or dangerous working and living conditions, and the denial of proper medical care. It stated that in 2004 alone, more than 800 construction workers died out of an estimated 2.7 million—although the government claimed only 34 deaths that year. In comparison, the U.S. Department of Labor tracked 1,186 fatalities out of roughly 9 million workers in 2005.

Most laborers in the U.A.E. come from South Asian nations including Bangladesh, India, and Sri Lanka. Many find work by taking expensive loans, averaging $2,000 to $3,000, from recruiting agencies in their home countries—and then devote most of their wages to paying off these advances. Employers in Dubai often pay far less than promised, HRW alleges, and most hold workers' passports for leverage. The average worker earns $175 per month.

Hadi Ghaemi, who authored the HRW report, says that exact statistics are almost impossible to find because the U.A.E. releases little data, but that the government's own figures indicate more than 20,000 migrant workers have filed complaints about the nonpayment of wages and "labor camp" conditions. Workers have also staged riots. In March, at the site of Skidmore, Owings & Merrill's Burj Dubai (photos above), hundreds of frustrated laborers smashed cars and ransacked offices, causing an estimated $1 million in damages, according to The Associated Press.

Nicholas Labuschagne, an adviser to the U.A.E. government and an executive at Dubai Holding, one of the country's key investment firms, says that the U.A.E. is addressing these problems. "[U.A.E. Prime Minister] Sheik Mohammed is embarrassed by the criticism that the labor issues have drawn," he says. "We're hoping we can show some very significant progress within the next six months."

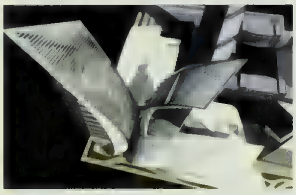
Since 2006, Labuschagne notes, the U.A.E. Ministry of Labor has conducted 83,000 inspection visits, resulting in sanctions against 6,000 firms for job-site violations, and has suspended work permits at 1,300 businesses due to the nonpayment of wages. Moreover, the government has hired 2,000 more inspectors, who are now being trained, and is developing a new center to track labor statistics, including worker injuries and deaths. And to combat unscrupulous recruiting agencies, the U.A.E. is developing agreements with nearby countries to ensure that all workers fully understand their contracts before being granted work visas.

Despite these steps, the main sticking point remains labor organizing, which Labuschagne says is a thorny security issue in a country where the estimated 2.7 million immigrant laborers rivals the size of a native-born population of 4.5 million people; in Dubai alone, there are almost 1 million migrant workers, compared to 1.4 million residents. In February, the U.A.E. released the draft of a revised labor law requiring companies to pay for workers' health care and employment permits, and requiring improvements in construction-site

(continued on next page)

ON THE BOARDS

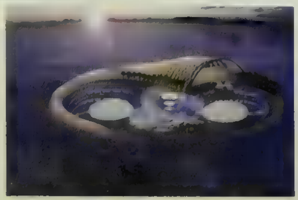
Nadel Architects, based in Los Angeles, designed a 2.3-million-square-foot office and retail complex for the



King Faisal Foundation, in Riyadh, Saudi Arabia. Its four glass towers, sheltered by perforated aluminum sunscreens, curve apart like flower petals—embracing, rather than challenging, Faisal's original building nearby, designed by Foster + Partners. *David Sokol*

Zaha Hadid Architects' Opus, a 921,832-square-foot office and retail complex in Dubai, consists of three 305-foot-tall towers that appear as a single cube pierced by a 98-foot-wide "free-form void that has been eroded from the solidity of the building," Hadid says. *Tony Illia*

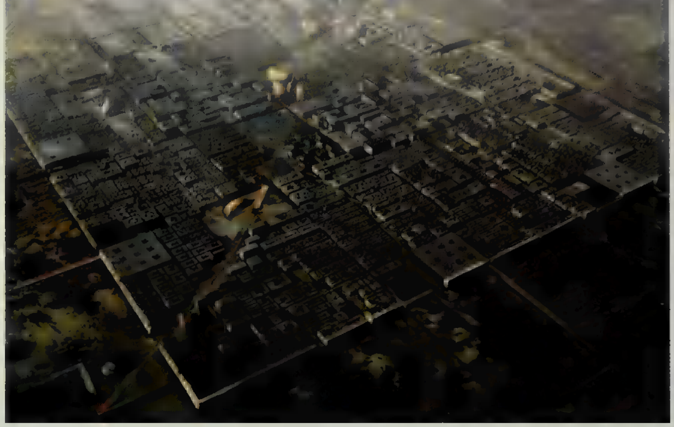
Joachim Hauser, a German aerospace architect, has designed



Hydropolis, a 1.1-million-square-foot hotel to be located 20 feet below sea level off the coast of Dubai. The curvy [illegible] lacks "harsh architectural design components of land-based edifices," Hauser says. *Dianna Dilworth*

For full coverage on these projects: architecturalrecord.com/news/

Foster's Masdar City more than a mirage?



Foster + Partners is designing the world's first zero-carbon, zero-waste city in Abu Dhabi. Named Masdar City, which means "the source," the 1,483-acre project will include commercial and manufacturing space dedicated to developing ecofriendly products, housing, a university, and the headquarters for Future Energy Company, which is spearheading the initiative.

Although the desert might seem an unlikely location for such a large sustainable undertaking, Masdar will tread lightly on the landscape by harnessing solar power and relying on construction features that resist high temperatures, including extra shading and slab cooling. Its design is rooted in the Arabic tradition of walled cities—but Masdar's stone-and-mud walls will be covered in photovoltaic panels capable of generating 130 megawatts. Along the site's northern edge, the walls will be more permeable to let in breezes. Electricity will also come from photovoltaic cells integrated into rooftops and a 20-megawatt wind farm. The city will get its water from a solar-powered desalination plant.

Since Masdar will be car-free, shaded paths will make walking more bearable in the region's extreme climate. Land surrounding the city, which is 20 miles outside the center of Abu Dhabi, will contain wind and photovoltaic farms, as well as research fields and plantations that will supply crops for the city's biofuel factories. These fields will also help reduce waste by acting as carbon sinks to offset gases produced in the factories—and they will be irrigated with gray water drawn from the city's water treatment plant.

Masdar will be developed in phases centered on two plazas. The first stage includes construction of a 60-megawatt photovoltaic power plant that will supply electricity for constructing the rest of the city. This will be followed by a 130-acre main square. Foster finished the initial phase of master planning this spring. The project's engineers include E.T.A., which is overseeing the renewable-energy components; Transsolar; WSP Energy; and Flack + Kurtz. Designers estimate that it will take 10 years to build out the entire city, with structures ultimately occupying nearly half of the site. When complete, Masdar will be home to 45,000 people and attract an additional 60,500 daily commuters, who will arrive in part via a new rail line.

"The biggest issue of all is to make sure that the city is balanced and will create as much energy as it uses throughout the time it is being built," says Gerard Evanden, senior partner in charge of the project at Foster + Partners. "The scale of the project will have the density of Venice, so it will grow gradually. Hopefully the knowledge and the technology of efficient materials will grow too."

Some of that future knowledge will be homegrown. Masdar's university is set to open by 2009, with 30 percent of the student population housed on site. Its students will be encouraged to participate in the development of the city while working on graduate degrees in sustainability. *Dianna Dilworth*

(continued from previous page)

safety. But Ghaemi notes that there is no time frame for this draft to become law. A March follow-up report by HRW called the draft a "violation of international standards" and cited "major omissions," including the prohibition of labor organizing and strikes, ambiguity about the minimum employment age, the absence of provisions to ban passport confiscation, and inadequate enforcement or penalties for violations of the law.

Ghaemi contends that although architecture firms in the U.A.E. rarely control worker conditions, they should consider themselves complicit in abuses. "The people designing these facilities should know brick by brick how they are being built," he says. "Labor is an inseparable part of getting all of these structures up."

Several architects working in the U.A.E.—including SOM, Perkins + Will, and FXFowle—were contacted for their opinions but most declined comment. Among those that would talk was HOK. "We're a small component in the equation, and I don't have control over how other people operate," says Daniel Hajjar, regional manager for its Gulf operations. "But I do know how we operate: We operate [in Dubai] as we would if we were in the United States. We don't engage in any activities that would put us at risk with the Department of Labor." He adds that the same goes for firms with whom HOK works on jobs. "The contractors here have really raised the bar in terms of how they work."

HRW hopes that these trickle-down improvements will spread to other parts of the world where abuses are common, such as China and Malaysia. But absent a concerted push for reforms, or pressure on construction companies, observers fear that governments will continue to look the other way. *Sam Lubell*

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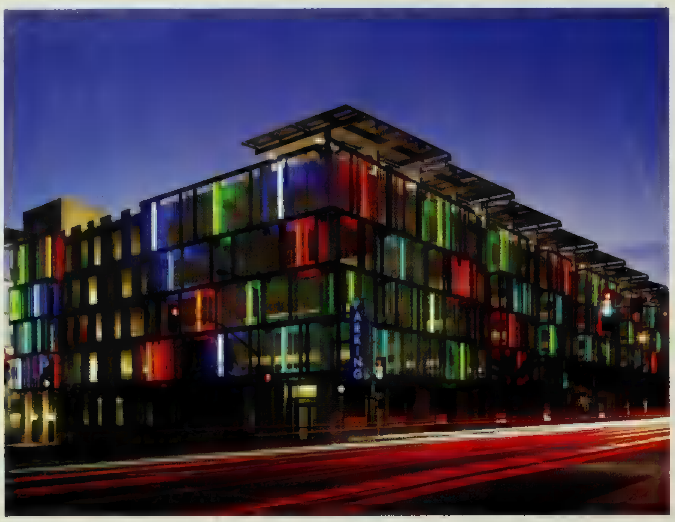
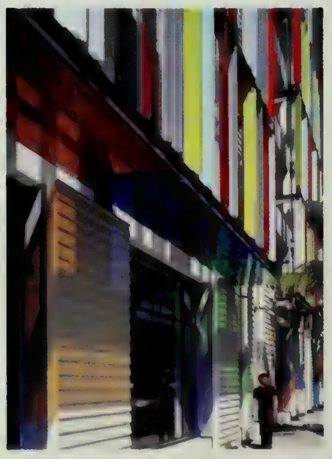
Parking garages driven to good design



The depressing amount of time most Americans spend sitting in traffic has an architectural counterpart in the bleak urban stretches devoted to faceless garages and parking lots. But as cities get serious about curbing pollution and congestion, and rising land prices drive developers to make the most out of tight sites, parking is also getting some architectural attention.

At the recently opened Museum Residences [RECORD, May 2007, page 222], across from the new Hamilton wing of the Denver Art Museum, Studio Daniel Libeskind and Davis Partnership wrapped a 980-space parking garage with the complex's 55 condominium units. The top of the garage, which provides parking for the museum as well, contains a 4-acre landscaped garden for the complex's residents. "Other architects might say, 'We'll put the garage underground and we'll valet park,' " Libeskind explains. "But that's very expensive, so I said, 'Let's do a normal garage, but create an urban setting.' We put recreation on top and used the garage as a hinge of new development. The car is subsumed by the pleasures of living or walking or using the space. We're using the parking to reduce focus on the car."

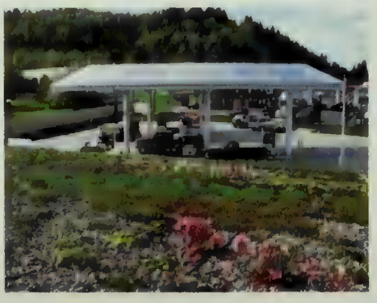
The Santa Monica Civic Center parking garage features channel-glass bays mounted in precast concrete.



Even car-centric Southern California is embracing similar ideas. Moore Ruble Yudell treated its brief for the Santa Monica Civic Center garage as a challenge. "Parking structures make up our cities," says James Mary O'Connor, AIA, a firm principal, "So we wondered: How can they be about more than parking?" The designers responded with a 900-space facility that features ocean views and a plaza-level café. With photovoltaic panels on the roof and room for bicycles among the automobile bays, it is the first parking structure to earn LEED certification.

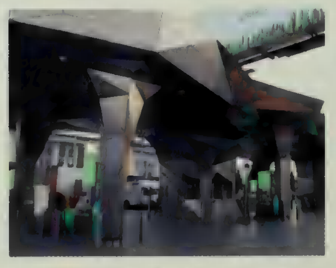
The building's six-story facade uses multicolored channel-glass bays mounted in white precast-concrete shells to suggest a rushing crowd. With such detail, O'Connor suggests, parking facilities can become landmarks that attract real crowds. Since it opened in March, the garage appears to be doing just that. "I went by at night and saw tourists taking pictures of each other in front of the facade," O'Connor says. "I thought, 'Well, we've done what we've set out to do.' " *Alec Appelbaum*

Gas stations go green, from fuel to finishes



As gasoline prices speed toward the $4-per-gallon mark, consumers are buying hybrid and flex-fuel cars or filling up with biodiesel, and new ethanol plants are sprouting up to squeeze an alternative fuel from corn. Fittingly, the retailers of these cleaner fuels are using green design to make an architectural statement that their pit stops are as ecoconscious as their fuels.

In Eugene, Oregon, SeQuential Biofuels opened the state's first commercial biofuel facility last year. The station dispenses ethanol as well as locally sourced biodiesel. Company cofounder Ian Hill worked [illegible], Susan Hill, AIA, an [illegible] Lexington, [illegible] incorporate green features [illegible] station's design. A roof embedded with a 32.6-kilowatt photovoltaic array shelters the pump islands; its central panels have clear backings to transmit more daylight. The roof above an accompanying 2,000-square-foot convenience store also received a green treatment: It is planted 5 inches deep with 4,800 native Oregonian plants. Bioswales adjacent to the parking areas filter storm water.



The roofs of both SeQuential Biofuels (left) and Helios House (above) feature plantings as well as photovoltaic cells.

Alan Eliot Goldberg, FAIA, a former design consultant to ExxonMobil, has developed a prototype station that embraces sustainable materials as well as solar power, which is used to create hydrogen fuel via electrolysis. Adapted from his Advanced Refueling Retail Center concept, it dispenses six different kinds of fuel. The 5,000-square-foot station will include a convenience store and an information center for hydrogen power. "If you're introducing a new product, you should have a new concept," Goldberg says of its design. Developed by the ARRC/H2 Alliance, the first station is planned for Syracuse, New York.

Will the green principles adopted by this small group infiltrate America's massive network of gas stations? BP may have the answer with its Helios House demonstration project, designed by Office dA with Johnston Marklee. Located on a 10,530-square-foot site in Los Angeles, it produces energy via photovoltaics, captures rainwater for irrigation, and reduces the urban heat island effect with a drought-tolerant green roof. Ironically, although these green features make the station eligible for a LEED Gold rating, Helios still dispenses old-fashioned gasoline. At least it's a start. *David Sokol*

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Action Jackson: Mississippi downtown booms

The rejuvenation of downtown Jackson, Mississippi, was already under way before 2005, but it kicked into high gear following Hurricane Katrina. The Gulf Opportunity Zone Act boosted a preservation tax credit to 26 percent, up from 20 percent. Although this incentive expires next year, it has spurred the repair of older buildings—and new developments are under way, too. "Over the last six years, local developers took a special interest in downtown," says John Lawrence, president of Downtown Jackson Partners, a nonprofit managing the renewal. "But now national investors are looking at us, and that's exciting."

Much of the development is concentrated at the central business district's southeastern edge. More than $450 million of construction is anticipated or currently in progress, including hotel, office, and residential buildings. One project that adds a bit of everything is the King Edward Hotel, a 1923 palazzo-style edifice that is being reconfigured into a Hilton hotel, 60 apartments, and offices. Asbestos remediation in the 300,000-square-foot building, which has stood vacant since the 1960s, finished this spring, and the $75 million construction project will conclude in mid-2009. New Orleans-based Historic Restoration is handling the design.

A few blocks away, an all-new project is transforming several parking lots into the Telecom Center, a convention-center complex designed by Miami-based Arquitectonica in partnership with locally based Dale and Associates. The first section, an [illegible]-square-foot theater-and-meeting-room facility with an anodized aluminum skin, opened last year. Its cavernous second story, whose frame resembles a flattened accordion pleat, cantilevers over a pedestal. An atrium features a 50-foot-tall window along its 100-yard length, providing clear views of Jackson's skyline, making the space a popular venue for weddings. The balance of the convention center, encompassing another 259,000 square feet, is set for completion in January 2009. "We knew a project of this magnitude could really energize downtown Jackson," says Bernardo Fort-Brescia, an Arquitectonica principal.

Other projects aim to do the same thing. The New York City–based H3 Hardy Collaboration designed a new federal courthouse that will be located nearby. Three large window walls will jut like TV screens from an articulated precast-concrete facade, allowing natural light into nine of 12 courtrooms, all of which will sport an unusual oval shape. Construction on the $115 million, 395,000-square-foot building will be completed in 2010.

Opening in June was the new Mississippi Museum of Art. Dale and Associates' design raised the roof of an existing masonry structure, creating window-lined eaves, and added a mahogany canopy that stretches to a fountain-lined plaza. The glass-fronted museum, with 54,000 square feet across its single level, plays off the large window of the Telecom Center across the street. Glavé & Holmes Associates, of Richmond, joined Dale on the project.

Dale is also consulting on Capital City Center, a $209 million mixed-use project that calls for 1.9 million square feet of hotels, 350 apartments, offices, and shops. It will occupy a prominent four-block site across from the convention center; an architect has yet to be chosen. *C.J. Hughes*

Margaret Helfand, FAIA, dies at 59

Margaret Helfand, FAIA, died on June 20 at the age of 59 of colon cancer. Since opening her office in 1981, Helfand had created a body of work distinguished for its clean, Modernist vocabulary and skillful use of natural materials, combined with a quiet and subtle inventiveness.

Female architects often find themselves relegated to designing houses and interiors for their entire careers, but Helfand was able to start small and go on to execute the large-scale institutional and commercial work that is more frequently the preserve of her male counterparts. Her best-known projects include the Unified Science Center, at Swarthmore College, designed with Einhorn Yaffee Prescott [RECORD, December 2004, page 198], and the offices of Automated Trading Desk, in Mount Pleasant, South Carolina, with McKellar & Associates [RECORD, June 2003, page 156].

Born in Pasadena, California, Helfand completed her undergraduate education at the University of California, Berkeley in 1969—where she also earned her M.Arch., in 1973. Two years later, Helfand came to New York City, where she joined Marcel Breuer Associates. She remained there until opening her own office. Among numerous awards recognizing her accomplishments, she won a Rome Prize to work in residence at the American Academy in Rome from 2002–03, and she was named a Fellow of the AIA in 1998.

Helfand is survived by her husband of 28 years, Jon Turner, and a sister, Judy Helfand. A celebration of her life will be held Tuesday, October 9, in New York City at 6 P.M. at the 15th Street Meetinghouse of the Friends Seminary. It will be followed by a reception at the National Arts Club, 15 Gramercy Park South. *Suzanne Stephens*

William LeMessurier, 1926–2007

Charismatic, daring, artistic. We don't always associate these qualities with structural engineers, but the highly esteemed William LeMessurier, who passed away June 14 at the age of 81, embodied all of them. Trained as an architect at the Harvard Graduate School of Design, he graduated from the Massachusetts Institute of Technology with a master's degree in building engineering and construction in 1953.

Since starting his practice in 1961, LeMessurier distinguished himself with his sensitivity to architects' aspirations. "He was a real collaborator—he understood what an architect was trying to do and was better able to respond to architects' needs than the normal structural engineer," says Mysore Ravindra, president and principal structural engineer of LeMessurier Consultants. He points to LeMessurier's work on the Federal Reserve Bank of Boston and New York's iconic Citicorp building, both designed by architect Hugh Stubbins, as prime examples of the engineer's understanding of architecture.

In addition to working at his consultancy, LeMessurier taught at both of his alma maters. He retired in 2003, when an advancing case of Alzheimer's obliged him to step down. His wife, Dorothy, says that a memorial service is tentatively scheduled for October 13 at the Harvard GSD. *David Sokol*

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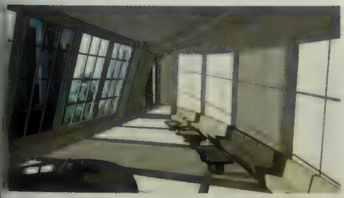

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Mexican museum will foster tolerance

Boxcar (right), used by the Nazis to transport people to death camps in Poland, is installed at Mexico's new Museum of Memory and Tolerance (left).

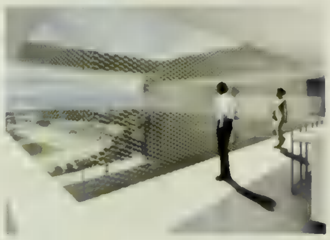
By itself, the image is not necessarily striking: a battered boxcar being hoisted into place at a construction site. Its power lies in knowing its history. The car, an exhibit at the new Museum of Memory and Tolerance, which opens next year in Mexico City, once transported Jews and other people destined for Nazi death camps in Poland during the Holocaust.

Although institutions commemorating Jewish history are common throughout Europe and the United States, museums that explore tolerance are less so—perhaps because they require something tangible, like the boxcar, to make this abstract concept real. According to Arturo Arditti, a principal of Arditti+RDT Arquitectos, just this sort of museum is needed in Mexico. "There's a lack of knowledge about genocides elsewhere in the world," he explains. "This museum will educate people about history, but it will also show them the importance of diversity, which is not widely addressed in Mexico."

The 70,000-square-foot museum is, significantly, located in Plaza Juarez adjacent to the Mexican Ministry of Foreign Affairs and a federal courts complex, which was designed by Legorreta + Legorreta. Arditti, together with his father and brother—who make up the family-owned Arditti+RDT—took aesthetic cues from these government buildings. Wood-framed windows, inset into the exposed concrete walls of the podium, continue a rhythm established on the ministry's facades. A four-story cube rises from this base. Along its south elevation, facing a plaza defined by the Legorreta buildings, a glass wall allows light into a central atrium.

A children's memorial, intended for children, will be located inside a small cubic volume cantilevered above this internal void from two supports—"like two hands holding it," Arditti says. While the Polish boxcar is unquestionably the museum's most important historic artifact, Arditti sees this children's space as its main architectural and symbolic element. "The only way to change prejudice is to educate kids," he says, "because older people won't be able to change." *James Murdock*

Saitowitz/Natoma's Tampa museum approved



Four times could be the charm for the Tampa Museum of Art, in Tampa, Florida. The museum's building committee voted unanimously in May to forge ahead with Stanley Saitowitz/Natoma Architects' design for a new facility to be located on the site of its existing home, which will be demolished. The committee chose the San Francisco–based architect last November. Trustees had nixed a design by Rafael Viñoly in 2004, citing concerns over that project's estimated cost, as well as two other schemes.

Saitowitz/Natoma's 68,000-square-foot building, the first phase of a possible larger structure, takes the form of side-by-side cubes—a two-story box with tall ceilings containing galleries, and a three-story box for support spaces—connected by a steel bridge and cantilevered over a glass-enclosed podium. The cantilever helps elevate most of the museum above the city's flood plain and provides shading for a park and sculpture garden. The cubes' curtain walls will be composed of two layers of perforated metal that allow daylight in and views out. Saitowitz describes this surface as "rippled and shimmering" like the Tampa waterfront.

LED lights, sandwiched between the metal facade layers, will project changing colors at night. Artists can control this lighting for site-specific installations. The museum's interior will feature a large lobby with a 40-foot-by-40-foot skylit atrium. Galleries wrap around it, enclosed by the same perforated metal as the facades. A landscaped green roof will provide sustainability benefits and space to host functions.

Construction on the new building is expected to begin early next year and be completed by 2009. The museum is raising $25 million toward capital costs and its endowment, while the city has pledged $17.5 million in Community Investment Tax bonds. *S.L.*

Piano designing Kimbell expansion

The anointing of Renzo Piano to design an addition to the Kimbell Art Museum, in Fort Worth, seems almost preordained. He worked for Louis I. Kahn during the 1960s and has three critically acclaimed art museums in Texas: the Nasher, the Menil Collection, and Cy Twombly Gallery.

Piano called the Kimbell commission, announced in April, "an awesome challenge, but an attractive one." His addition will be located diagonally across the street from Kahn's 1972 original on land the museum bought in 1998. It will provide space for temporary exhibitions, allowing the Kimbell to display more of its small but exquisite permanent collection. "No other museum puts paintings of this quality in storage," former director Timothy Potts said at the time. "Yet we often do it for half a year."

This matter-of-fact announcement contrasted sharply with the fireworks surrounding a 1989 proposal by his predecessor, Ted Pillsbury, to add several vaulted galleries to the original building. Critics, architects, and especially the Kahn family denounced that plan as a sacrilege. The expansion idea resurfaced in early 2006 at a dinner attended by Potts, trustees Ben and Kay Fortson, and Kahn's daughter Sue Ann. It wouldn't be a physical extension this time, but a separate building with its own program and architectural identity. The "hands-off" approach delighted Sue Ann Kahn, the most ardent defender of her father's architectural legacy.

Piano has toured the site and studied its relationship to a nearby building by Tadao Ando, but details about the size, cost, and timing of the expansion are yet to be determined. What is clear is that this time around, nobody is likely to complain about "adding brush strokes to a Picasso."

"I doubt we could do better than Renzo," says Sue Ann Kahn. "He knows Texas. He's been to see the Ando building. He'll ponder the relationship of old and new. You can't beat those odds." *David Dillon*

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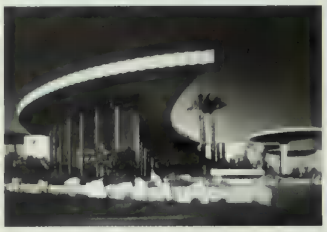
Razing Arizona: Phoenix Modern threatened



If the fate of its midcentury bank buildings is any indication, Phoenix is withdrawing valuable architectural assets from its skyline to make way for growth in what is the nation's fifth-largest city. Already lost are two celebrated neighborhood bank branches razed earlier this year: the Ed Varney–designed First Federal Savings branch, and the geodesic-dome Valley National Bank, in nearby Tempe, designed by Weaver & Drover, now called DWL. Dating to the early 1960s, they expressed Phoenix's postwar commitment to regional architecture.

The Valley National was the brainchild of longtime bank president Walter Bimson, an arts patron and friend of Frank Lloyd Wright, who dismissed drive-up windows and preferred that customers meet with tellers face-to-face. Preservationists now worry that another former Valley National, currently a Chase Bank, could be threatened. Located in the Arcadia neighborhood, this 1967-vintage building is often mistaken for a work by Wright. Its precast-concrete mushroom columns, view windows, and the careful interweaving of modern materials with hand-selected local rocks are in fact Wright-inspired touches by Weaver & Drover project architect Frank M. Henry, who still teaches at Taliesin West.

Developers are eyeing a park (left) adjacent to the former Valley National bank (far left).

The 4.7-acre Chase site includes the 9,000-square-foot bank, a parking lot, and a greenbelt park that is the last to buffer commercial and residential uses in Arcadia. But developer Opus West has proposed replacing the park and some of the parking lot with a complex containing condominiums, restaurants, and retail space. "Our plans call for a design that is appropriate in today's development market and preserves the bank branch," says Jeff Roberts, the firm's vice president of real estate development.

Critics respond that even if the bank itself is spared, its original intent would be destroyed. "The new building would intrude on the historic context and site of the bank, which was created and designed to be a combination of architecture, public art, and open space," says Arcadia resident Roger Brevoort.

Opus West's project awaits a hearing this summer before the Phoenix Planning Commission—a meeting at which the developer can bank on hearing from Brevoort and others. *David M. Brown*

Bush library architect selection begins

It's getting to be legacy time for President George W. Bush, and that means building a presidential library—which, after months of official denials and equivocations, is headed for Southern Methodist University (SMU), in Dallas, the alma mater of first lady Laura Bush. This location was confirmed in an RFQ issued on May 24 by 3D/I, a Houston-based firm hired by the Presidential Library Foundation to oversee the selection process.

The RFQ outlines a 145,000-square-foot library and 40,000-square-foot public-policy institute on "property that SMU recently acquired." The project must be compatible with "the distinct architectural character of SMU," that is, Georgian, and "commemorate and celebrate the accomplishments of President Bush." Kevin Sloan and Alan Chimacoff, then both of Hillier Architecture, assembled the master plan. A dozen architects received the RFQ. They include Cesar Pelli Associates, Robert A.M. Stern, HOK, and Hammond Beeby Rupert Ainge, as well as Texas-based Lake/Flato, Overland Partners, HKS, and Beck Architecture. These firms had until July 25 to provide management plans; a winner could be announced this month.

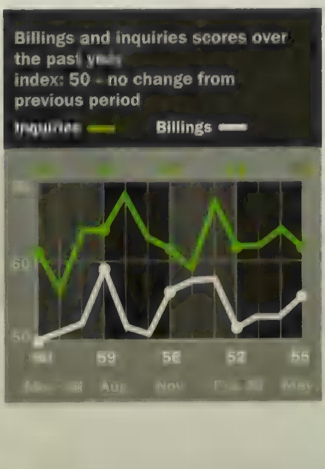
The RFQ confirmed what observers suspected since SMU beat out Baylor, Texas Tech, and the University of Dallas in a high stakes competition last fall. But SMU's coup was overshadowed by lawsuits initiated by property owners who contended that the university duped them into selling on the cheap, as well as by harsh criticism from SMU professors who fear that Bush's public policy institute will be a partisan think tank. Although SMU prevailed in these suits, it's unclear how much influence professors will have over the independently staffed policy institute. Also unclear is an exact location on campus where the library will be constructed, and a price tag for the project, although this is believed to be roughly $200 million. *D.D.*

Taliesin regains HLC accreditation

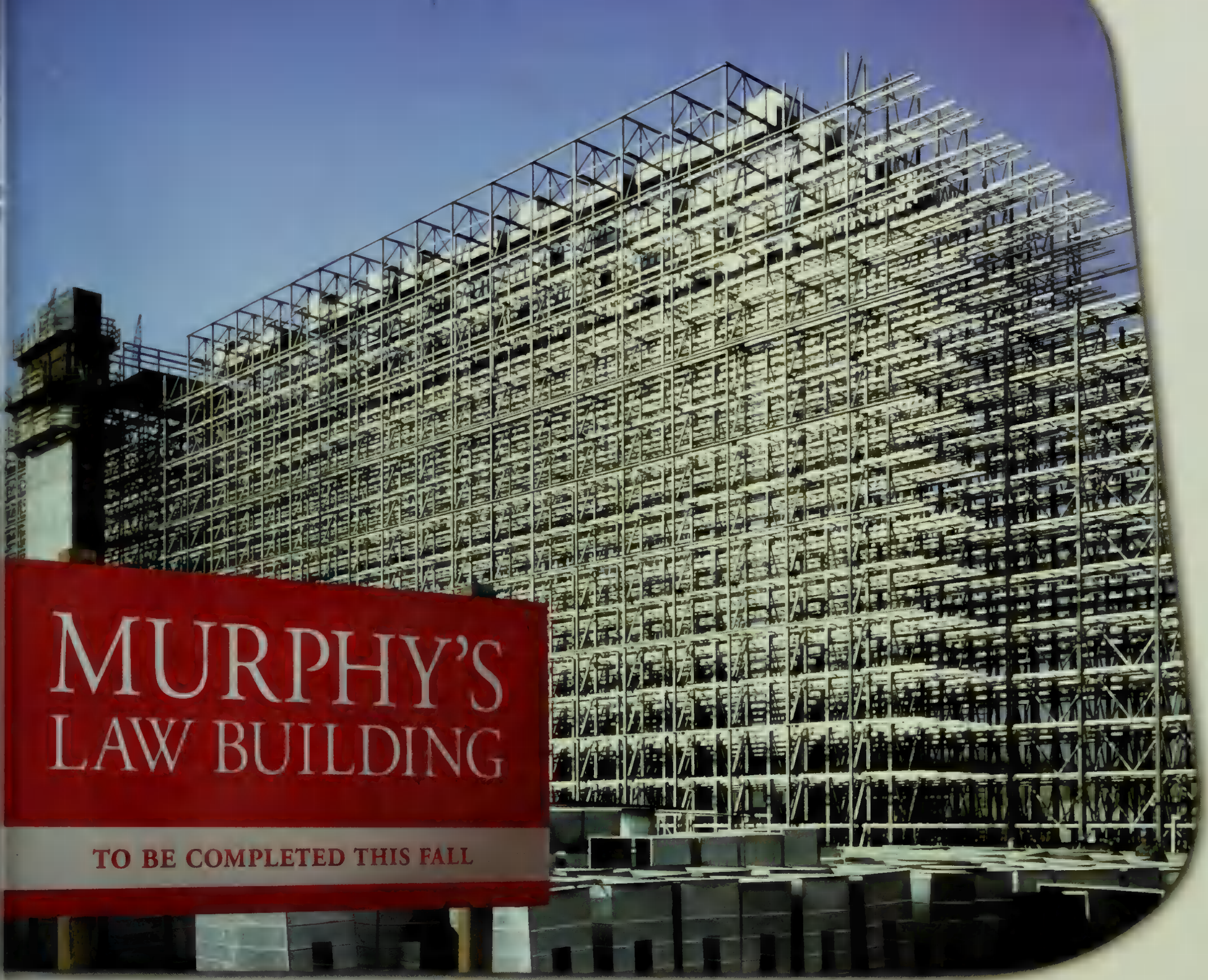
The Frank Lloyd Wright School of Architecture regained full accreditation from the Higher Learning Commission (HLC) in June. Its future had been in doubt since the HLC placed it on notice in 2005, following falling enrollment and turmoil within the Frank Lloyd Wright Foundation, which runs the school. Maintaining HLC accreditation is a prerequisite for National Architectural Accrediting [illegible] accreditation, which the school [illegible] for its master's program. [illegible] were very high for accreditation," observes Victor Sidy, AIA, who was appointed as the new dean two years ago.

HLC reaccreditation marks a bright spot for the otherwise beleaguered Wright foundation, which has suffered financial woes and board turmoil during recent years. In response, the group revamped its organizational structure. Among the changes: The Taliesin Fellowship, a group of longtime Wright disciples, forfeited veto rights on the foundation board. *Tony Illia*

AIA's billings index posts healthy gain



The American Institute of Architects' Architectural Billings Index gained 2.3 points in May, for a total score of 55, after holding steady during the previous two months. Any score above 50 reflects growth. The number of new business inquiries, meanwhile, declined slightly to 62.4 points. These indices are prepared based on surveys sent to 300 mostly commercial design firms. Studies suggest they are a good predictor of construction levels nine to 12 months in the future. *J.M.*



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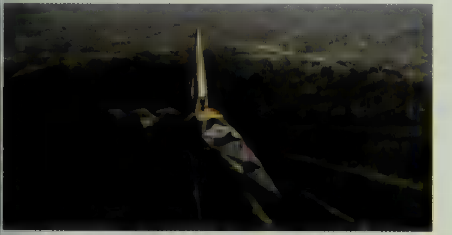
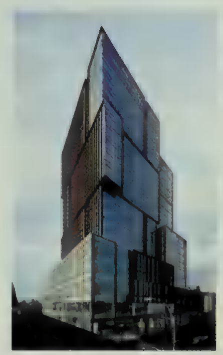
RMJM Group bought Hillier Architecture for $30 million on June 18. For Princeton, New Jersey–based Hillier, which has 350 employees in five offices nationwide and in China, the deal represented the end of a two-year process initiated by former chairman J. Robert Hillier. "We have been exploring various ways to transition the firm as I got closer to being more senior than I wanted to be," explains Hillier, who founded his firm in 1966. Peter Morrison, RMJM's C.E.O., adds that acquiring Hillier gives the Edinburgh-based firm an established presence in the U.S.—the last major market that this 750-person global giant had yet to enter. The combined firm now has more than $15 billion in projects under design. (Hear a podcast with Hillier and Morrison at architecturalrecord.com.) *J.M.*

Foster + Partners has designed Yugra, a 919-foot-tall skyscraper for developer STT Group in the Siberian oil boomtown of Khanty Mansiysk. The 56-story, crystalline tower will be among Russia's tallest. Situated in a wooded hillside at the edge of town and flanked by two diamond-shaped buildings, Yugra will contain shops, offices, two hotels, and residences. Construction on the 1.7-million-square-foot complex is set to begin next year and finish by 2012. *Paul Abelsky*



The National Council of Architectural Registration Boards (NCARB) convened in June for its 88th annual meeting, at which it established an official position on sequencing for the Intern Development Program (IDP) and Architect Registration Examination (ARE). Previously, NCARB had recommended that candidates earn a National Architectural Accrediting Board–accredited degree, complete IDP, and then pass the ARE. Its new position removes the requirement that candidates must finish IDP before being eligible to complete the ARE, and it formally acknowledges a jurisdiction's right to allow candidates to complete the ARE and IDP concurrently. Nine of NCARB's 54 jurisdictions had already allowed concurrent sequencing. Also at the meeting, Douglas K. Engebretson, FAIA, of Tessier Associates, was elected NCARB's new president. *Kelly Davidson*



Harlem will get its first major office building in three decades: a striking glass tower designed by Swanke Hayden Connell Architects for Vornado Realty Trust. Named Harlem Park, the 340-foot-tall, 21-story structure will be the neighborhood's tallest. It replaces a parking lot located at Park Avenue and 125th Street, a gritty corner yet to be affected by the area's booming residential and retail development. "We embraced the squat and masculine forms of the Harlem neighborhood," says Roger Klein, a design principal, of the building's irregular composition of stacked boxes. Construction is expected to begin this month and finish in 2009. *Jenna M. McKnight*

Coop Himmelb(l)au's first project in the Americas, the Akron Art Museum's John S. and James L. Knight Building, opened on July 17. The 63,000-square-foot wing adds to an 1899 Renaissance Revival structure. The addition's aluminum-skinned "Gallery Box" floats in a 51-foot cantilever, while a 57-foot-high "Crystal"—a volume that connects it to the older structure—flings glass shards at arrhythmic angles to enclose a new entry and atrium. Topping it is the "Sky Cloud," a 327-foot-long cross whose wings cantilever to distances of 70 feet. *Charles Rosenblum*

ENDNOTES

- Arcadis, a Dutch environmental and infrastructure engineering firm, acquired Baltimore-based RTKL Associates for an undisclosed amount in July.
- Oldcastle Glass purchased Vistawall Group, making it the largest manufacturer of architectural glass and aluminum glazing systems in North America.
- The Royal Institute of British Architects awarded Grimshaw Architects' Southern Cross Station in Melbourne its prestigious Lubetkin Prize.
- Mitchell E. Sawasy, AIA, of Rothenberg Sawasy Architects in Los Angeles, was voted president-elect of the International Interior Design Association.

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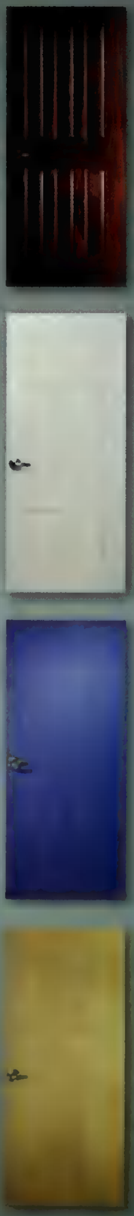

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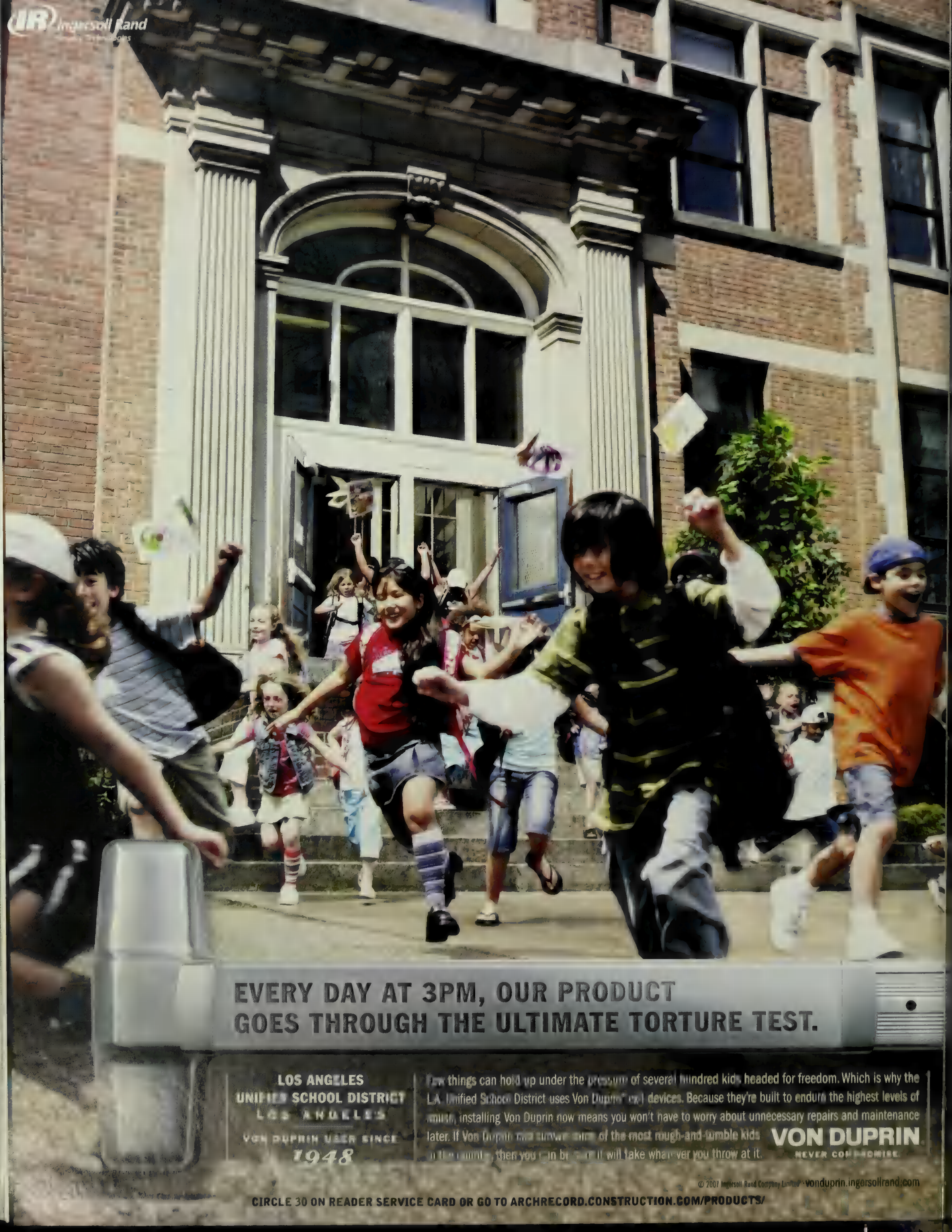

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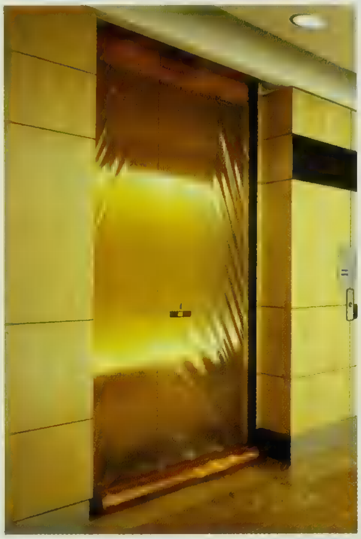

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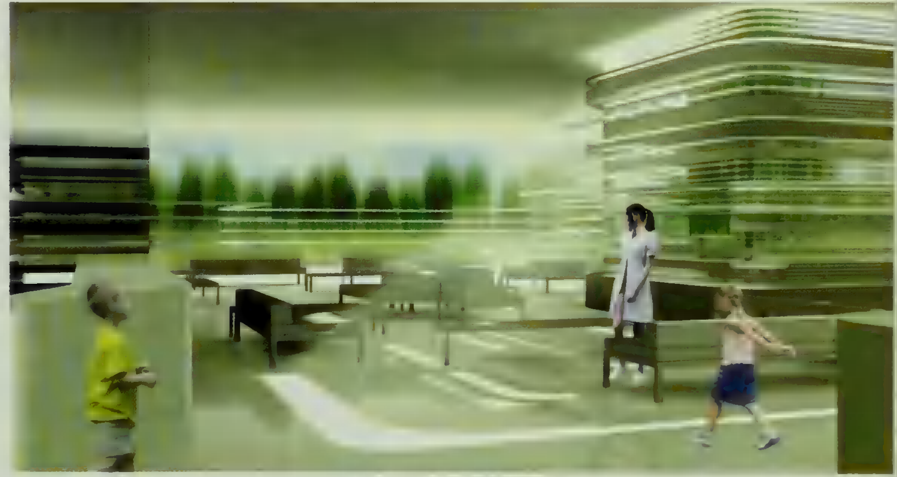
Design

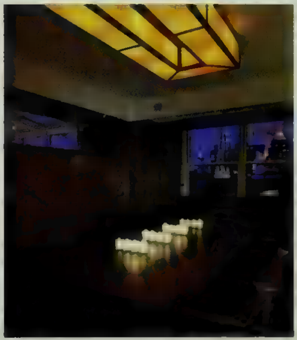
Studio ST: From inside to the ground up

When Israeli architect Esther Sperber left Pei Partnership Architects to strike out on her own with Studio ST in 2003, she was excited, nervous, and up to the challenge. "Having the opportunity to work so closely with Mr. Pei was amazing," she says. "It felt like we were dealing with the end of High Modernism. I knew it was a gamble to start my own firm, but I was interested in trying something new, and putting into practice some of the technologies I had learned in school." That was Columbia's Graduate School of Architecture, which Sperber attended after moving to New York from Jerusalem in 1997. "There was a huge emphasis on doing those crazy computer-generated blobs when I was there," she says. "The blobs weren't that interesting to me, but the technology was. I'm very interested in expanding the palette of forms, construction methods, and ways of making spaces, as a means of allowing a better focus to try to create places and spaces for human activity and interaction."

Sperber spent her first year on her own sharing an office with another young firm, dZO, and the two practices collaborated on a number of international competition submissions. "Competitions are refreshing and fun," she says. "Though there's a side to them that's a little exploitative, they're an opportunity to think through design challenges." After that first year, word of mouth got Sperber interior renovation jobs, and she has been able to put her philosophies and expertise into action ever since, as her two-person firm now has a roster of high-end residential renovations completed or under way, as well as new construction projects for real estate developers. While she enjoys the high-end residential projects' big budgets,

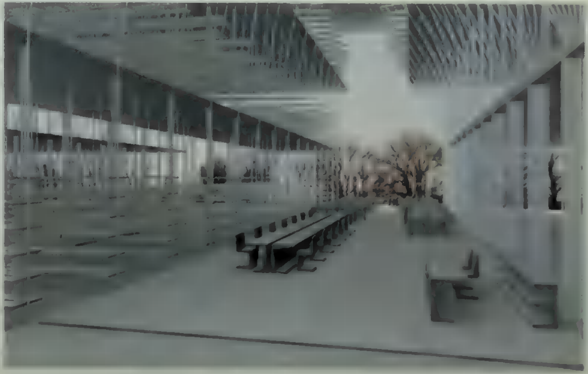


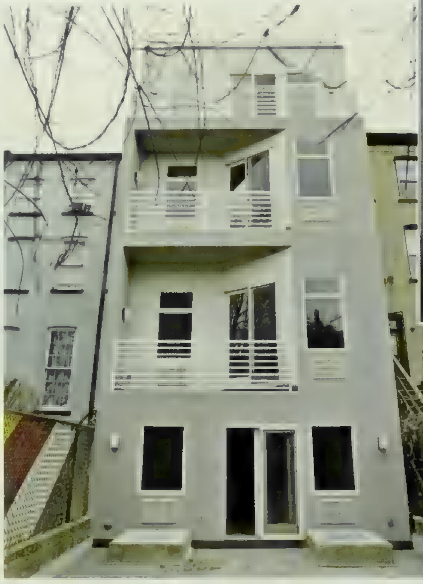
Mediatheque, Carnoux-en-Provence, France, unbuilt
A modern library (above) where a bookshelf/wall of stacked glass-and-concrete blocks links inside and out.



Village Duplex, N.Y.C., 2006
A 2,200-square-foot duplex (above) with a series of differentiated spaces including a glass-and-metal conservatory and large dining room.

National Library of the Czech Republic, Prague, unbuilt
This library (below) calls for reading halls, a theater, lecture halls, offices, work spaces, labs, and book-storage areas that celebrate interaction with the public.





State Street Town House, Brooklyn, N.Y., 2005
A gut renovation, this town house was divided into four apartments, adding 320 square feet to each floor.

she's excited about her latest ground-up projects, including a private house in New Jersey. "It's a small budget, but with clients who are very open to new ideas. And working with a tighter budget forces you to focus on simplicity, space and light, and efficient proportions."

Efficiency is a big part of Sperber's design philosophy, which is where her love of new technology comes in. "When anything is cut by a computer-generated machine, you can use smaller pieces and save materials and time," she says, referring to a home project in Atlanta, Georgia, currently in design called the Slice House (view plans at architecturalrecord.com/archrecord2), where she will use precut and prewired structurally insulated panels that are attached to one another and don't require additional stick framing. The home will also have everything in place to easily add photovoltaic panels if and when the client decides to take the next step with sustainability.

For Sperber, the next step personally is taking a few months off to have a baby, which she admits is not easy to schedule when you run your own very small firm. With as many projects as she has in the works, however, she'll be back in the office soon. "There's nothing like the smell of wet concrete," she says, "so I know I won't be away from the joy of making buildings for long." *Ingrid Spencer*

ONLINE: To view additional photos and projects by Studio ST, and to comment on this article, go to **architecturalrecord.com/archrecord2/**.

Work

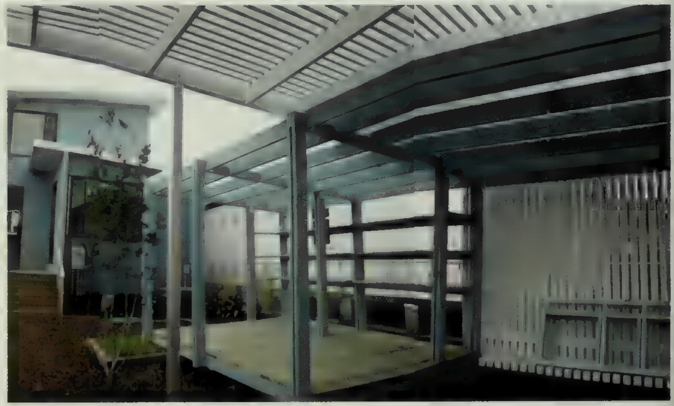
URBANbuild students bring hope to New Orleans

Even before Hurricane Katrina decimated New Orleans, housing in the city was a problem. Tulane University's School of Architecture, under an umbrella program of the school called Tulane City Center, had been working to help since the summer of 2005, with a design-build studio called URBANbuild. "Thirty-three percent of people in Orleans Parrish were living below the poverty line before Katrina," says Byron Mouton, codirector of URBANbuild. "Our program was designed with a 'macro scale,' which concentrates on research at the regional/city/neighborhood scale, and a design-build 'micro scale,' concentrating on research at the neighborhood/dwelling/material scale." According to Mouton, since the hurricane, these and other outreach programs under Tulane City Center's auspices have gained strength, as justification of their necessity has been established and funds have become available.

Thanks to that urgency, the partnership with community nonprofit agencies that specialize in affordable housing and neighborhood redevelopment, and the hard work of faculty and 12 undergraduate students, URBANbuild has completed its second design-build project, Prototype 02—a variation on the typical New Orleans camelback home, and an experiment in new building technologies. Located in a blighted area called Central City, the 1,320-square-foot house was built with panelized steel-stud walls.

"This is the second prototype house we've completed in this studio," says URBANbuild project manager Emilie Taylor. "The first one was a more cautious effort done with traditional stick framing, but because the panelized walls for 02 were made in a warehouse, we could save time during the construction process."

[illegible] because the two-semester time frame of the class meant one semester [illegible] design and one for building, more time was essential. Except for the licensed [illegible] the students do all the work. "Starting in January, we were putting in [illegible]0-hour weeks to stay on our 15-week schedule," says student Matthew [illegible]ver. "[illegible] want to disperse the product," says Mouton.



The Prototype 02 house (above) was designed and built by students from the URBANbuild design-build studio (left).

"Our goal is to replace homes to repair neighborhoods." While the URBANbuild studio continues to modify its design to reach the best solution for mass production, a separate studio at Tulane led by local architect Coleman Coker, called Greenbuild, and producing a modular home, will also be completed this year. With that house the third in the series, the Tulane City Center program is well on its way to helping provide alternative housing solutions to the city at an affordable cost. Until the program gets the plans for the URBANbuild homes mass-produced, neighborhood housing agencies are finding buyers for the prototypes. The first has been sold for $120,000 (had the buyer qualified for low-income status, he would have been able to purchase the property for less), and the second is currently available for purchase.

With all the success of the program, Mouton admits it's still a struggle. "We're often trying to build in parts of the city that should become greenspace," he says. "But the people from these areas are proud, and they're not about to give up the neighborhoods they've lived in for years. It's a larger urban issue that we're very much involved in." *I.S.*

ONLINE: To view additional information about URBANbuild, and to comment on this article, go to **architecturalrecord.com/archrecord2/**.

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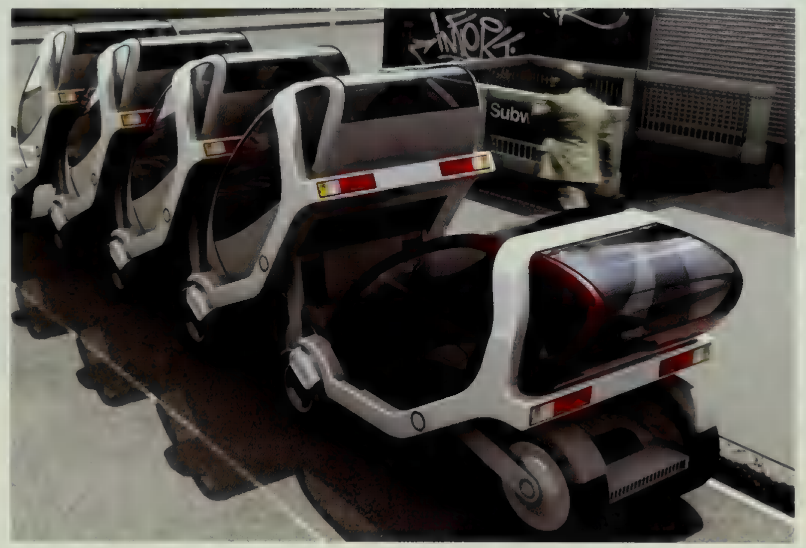
Going the extra mile to make mass transit more personal

Critique

By William J. Mitchell



Six to 8 stacked City Cars can fit into one traditional parking space. When located at major origin and destination spots, such as transit stations, they can carry people the last mile to their final destinations.

For too long, too much of the discussion about urban mobility and its relationship to sustainability has been locked into an increasingly sterile debate between proponents of public transit and advocates of the automobile. Both sides ignore some inconvenient truths.

Transit enthusiasts point out the inherent efficiencies of high-capacity public-transportation networks, but often neglect to mention that, under most practical circumstances, they offer no solution to the "last-mile" problem. They can get you to approximately where you want to go approximately when you want to get there, but rarely exactly. You still have to get from the nearest transit stop to your actual destination. It is nice to imagine that this problem could be handled by clustering high-density development within convenient walking distance of transit nodes, and sometimes it can—at least partially. But this is far from a general solution. Often, circumstances conspire against it: The distances are too great; it's impractical for the aged, small children, and the physically impaired; it can expose you to a variety of dangers; it's unattractive in rainy, snowy, very cold, or very hot weather; and it just doesn't work if you have a lot of stuff to carry.

Defenders of the private automobile emphasize that it provides mobility on demand, there are no timetables for its use, and it gets you right to your destination. As a result, people really *like* their cars—not only for the convenience they offer and their elimination of the "last mile," but also because they function as powerful emblems of personal freedom and social status. Furthermore, the economic, social, and cultural vibrancy of cities depends upon dense, convenient, unrestricted interconnectivity, and automobiles have become universal agents of this.

The problem with cars, which has become increasingly evident as their popularity has grown, is that the scale effects and externalities come back to bite you. When there is an extensive road network with few vehicles on it—as, for example, on the Los Angeles freeway system late at night, it's indeed astonishingly quick and easy to get around. But when the network becomes choked with traffic, congestion and delays begin to negate the automobile's advantages. Automobiles account for huge percentages of the energy consumption of cities, producing economic and geopolitical problems in the short term and a significant threat to sustainability in the long term. Tailpipe emissions turn out not only to produce local pollution, but also to contribute to global warming.

In my Smart Cities group at the MIT Media Laboratory, we have been developing a third option—a clean, compact, energy-efficient City Car that promises high levels of personal mobility at low cost, and effectively complements transit systems by, among other things, efficiently solving the "last-mile" problem. This project illustrates the growing potential of ubiquitously embedded intelligence and networking to revolutionize the ways we design and operate buildings and cities.

The crucial enabling technology of the City Car is an omnidirectional robot wheel that we have developed. This wheel contains an electric-drive motor, suspension, steering, and braking. There are no mechanical linkages connecting the robot wheels to the driver's controls. In other words, the car is fully drive-by-wire, with just an electric cable and a data cable going into each wheel, which has a simple, snap-on mechanical connection to the chassis.

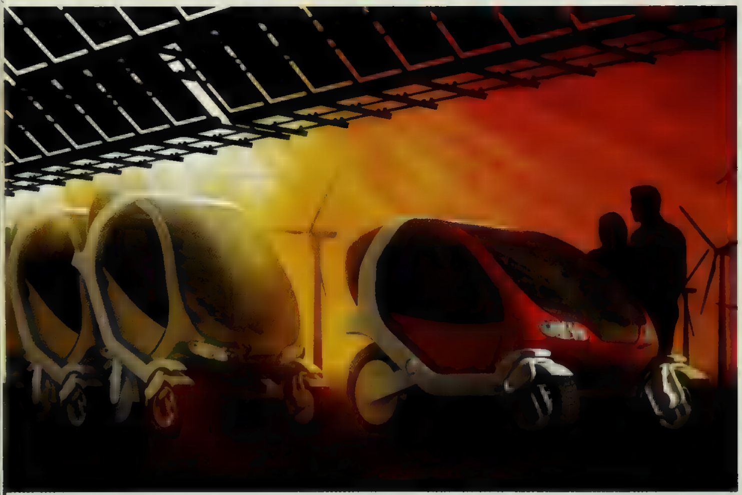
Elimination of the traditional engine and drive train enables modularization of the mechanical systems and offers great flexibility in design of the body and interior. We have taken advantage of this to create small, lightweight passenger vehicles that fold and stack like shopping carts at the supermarket or luggage carts at the airport. The independent, omnidirectional wheels provide extraordinary

William J. Mitchell is the head of the MIT Media Lab's Smart Cities research group.

maneuverability: Cars can spin on their own wheelbases instead of making U-turns, and can parallel park by slipping in sideways. Depending on context, six to eight folded and stacked City Cars can fit in one traditional parking space.

Although City Cars can work quite nicely as privately owned vehicles, they provide the greatest sustainability benefits when they are integrated into citywide, intelligently coordinated, shared-use mobility systems. The idea is to locate stacks of City Cars at major origin and destination points, such as transit stops, airports, hotels, apartment buildings, supermarkets, convenience stores, universities, hospitals, and so on. You just swipe a credit card, drive a vehicle away from the front of the stack, and return it to the rear of another stack at your final destination. From the user's perspective, it's like having valet parking everywhere.

From the operator's perspective, it's a mobility service business. Success depends on having enough stacks and vehicles to satisfy demand, while minimizing unnecessary capacity and implementing an effective strategy for tracking vehicles through GPS and redeploying them, as necessary, from points of low present demand to points of high present demand. This system enables a high vehicle-utilization rate, doesn't leave cars sitting uselessly around for most of the time—as private automobiles do—and minimizes the number of vehicles needed to provide a high level of personal mobility within an urban area.



City Cars can serve as intelligent agents, storing and providing energy to the power grid.

This isn't entirely new. The feasibility of shared-use, personal-mobility systems based on vehicle stacks in urban areas has recently been demonstrated by the Velo shared-use bicycle system in Lyon, France. Currently, this system is being extended to Paris with approximately 2,000 stacks and 20,000 bicycles.

Just as your electric toothbrush automatically recharges when you replace it in its holder, so City Cars automatically recharge when they are parked in stacks. Since they only need to travel from stack to stack, they don't need long ranges or the associated bulky, heavy, and expensive battery packs that are, unfortunately, characteristic of today's electric and hybrid cars.

Intelligent agents

When City Cars are stacked, they add storage capacity to the electric grid. They function as intelligent agents with the capacity to buy electricity from the grid when they need it and prices are low, and also to sell electricity back when they don't need it right away and prices are high. In effect, they become active, alert traders in a dynamic electricity market. This helps the power grid to even out peaks, and allows it to make more effective use of renewable but intermittent power sources such as solar and wind. A project developed by Google and Pacific Gas and Electric, using plug-in hybrid cars, has already demonstrated (on a very small scale) the idea of vehicle-to-grid power.

Large-scale implementation of this concept would be a significant step toward transforming cities into distributed, virtual power plants—an Internetlike arrangement that promises many sustainability and security advantages. Buildings would not only consume electricity, but also produce it through various combinations of solar, wind, and hydrogen-fuel-cell technologies. Vehicles, and perhaps some buildings, would provide battery-storage capacity. The system would be coordinated through ubiquitously embedded intelligence and networking. Vehicles, appliances, and the mechanical and electrical systems of buildings would become intelligent economic agents, trading in energy markets with knowledge of demand and price patterns and the capacity to compute optimal buying and selling strategies.

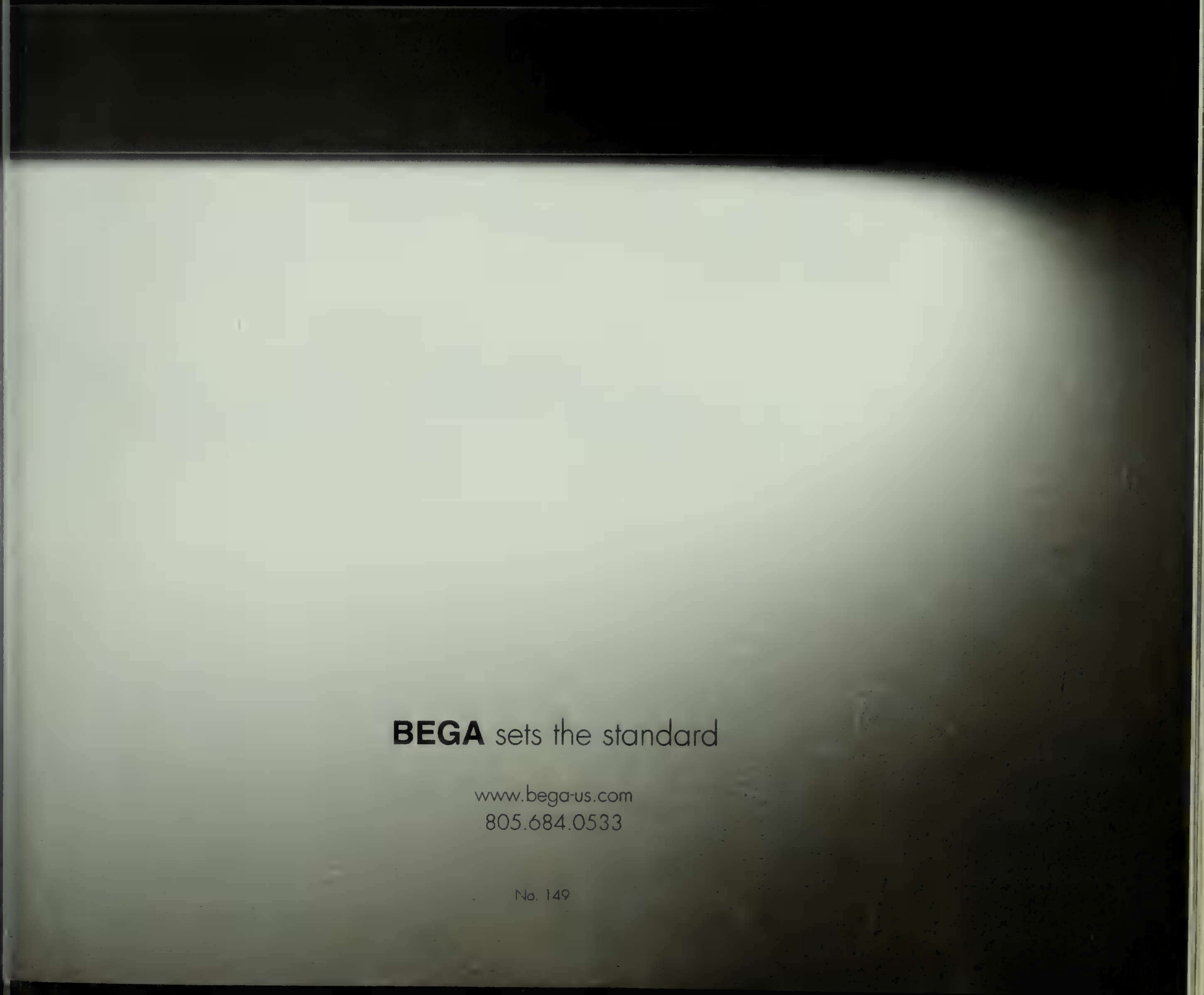
The concept of intelligent agents operating cleverly in markets with dynamically varying prices can be extended, as well, to road space and parking space. Consider, for example, a citywide system that monitors traffic volumes in real time on a block-by-block basis, adjusts congestion road prices accordingly, and conveys this information to the GPS navigation systems of wirelessly networked City Cars. Drivers could then ask their navigation systems to find the quickest paths to destinations subject to cost constraints or the cheapest paths subject to time constraints. This produces a feedback loop controlling the allocation of road space: Vehicles adjust their routes in response to current price patterns, and price patterns adjust in response to vehicle densities.

We propose a similar approach to parking space. Using a simple sensing mechanism combined with wireless networking, City Cars can monitor the availability of parking stalls and stack space near their destinations. Based on instructions from drivers about the urgency of finding parking and the acceptability of some displacement from their destinations, City Cars might automatically bid in eBay-style auctions for available spaces and then guide drivers to them.

With our sponsor, General Motors, we have prototyped and demonstrated the feasibility of the crucial elements of the City Car system, and are currently exploring possibilities for implementing it in realistic contexts. A major exhibition on the City Car will open at the MIT Museum on September 28.

The City Car illustrates a general principle that, I believe, will become increasingly important in architecture and urban design as the technology of ubiquitously embedded intelligence takes hold and as designers recognize and respond imaginatively to its possibilities. Vehicles, appliances (both fixed and mobile), and the various mechanical and electrical systems of buildings will all evolve into specialized, networked robots that can make decisions and respond intelligently to the varying conditions of the larger environments within which they are embedded. Resources—particularly energy and space—will be managed and allocated in far more sophisticated ways than they are today. The effects on patterns of space use, building systems and their functionality, and the prospects for long-term urban sustainability, will be profound—often in ways that are, as yet, unimagined. ■

ONLINE: Would City Cars work in your town? Respond at ***architecturalrecord.com/features/critique/***.



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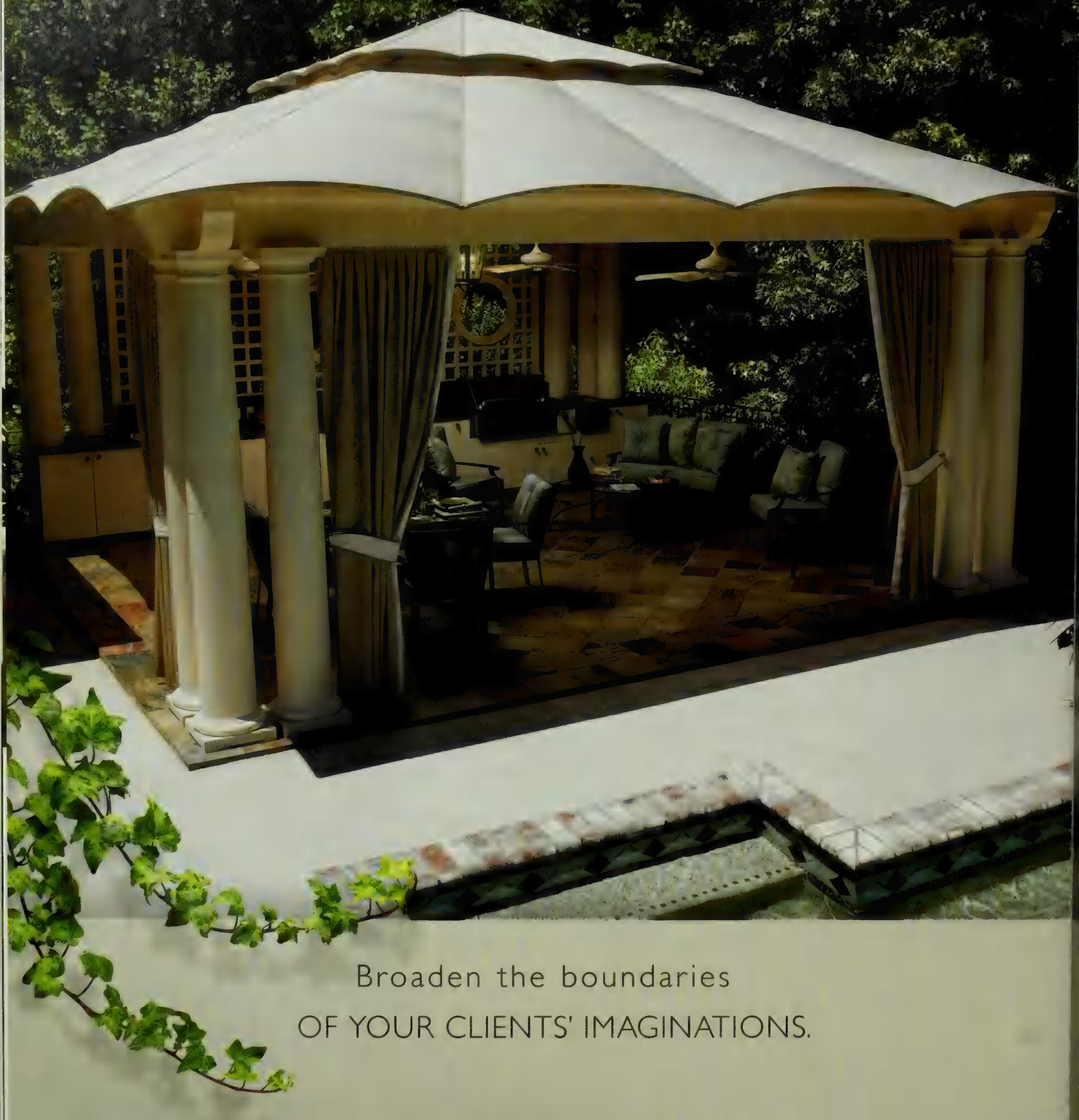

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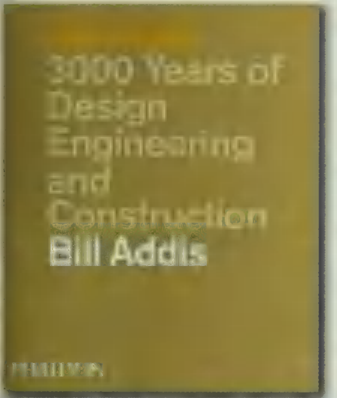
Finding the magic when architects and engineers collaborate

Books

Building: 3000 Years of Design, Engineering, and Construction, *by Bill Addis. New York: Phaidon, 2007, 640 pages, $75.*



This monumental and extraordinarily ambitious look at innovation and creativity in engineering and building construction over 3,000 years represents a tour de force in the literature of engineering. Replete with 800 illustrations, the book is impeccably designed as a reference for both architects and engineers. It is both an erudite tribute to engineers who have advanced building construction from Greco-Roman times to the present and a convincing plea for increased teamwork between architects and engineers throughout the design process.

The author assumes the roles of master storyteller and adept history instructor, prefacing each chapter with a six-part time line tracking innovative engineers, new materials and technology, pedagogy, design methods, design tools, and key buildings.

Addis tells even the much-repeated saga of how Brunelleschi sold church officials on letting him build his innovative dome with freshness and immediacy. He recounts tales of more obscure engineers, like Thomas Tredgold, author of a groundbreaking 1824 text on building ventilation and heating, so readers feel like their contemporaries, looking over their shoulders. Addis makes ancient inventions, many of which are the basis for contemporary architectural achievements, seem like today's news.

The book's subtext, underscoring the value of ever-evolving and sophisticated cooperation between architects and engineers, is conveyed through repeated accolades to Ove Arup, who Addis feels established the "gold standard" for such cooperation during design work on the Sydney Opera house. Apart from a few too many mentions of Arup at the expense of other modern engineers, the only flaw marring this magnificent achievement is Addis's regrettable myopia regarding building engineering achievements outside of the Western world. But there is enough for a lifetime of study between these covers. *Norman Weinstein*

Ove Arup: Masterbuilder of the Twentieth Century, *by Peter Jones. New Haven: Yale University Press, 2006, 352 pages, $40.*

Peter Jones paints a nuanced portrait of Ove Arup (1895–1988), a charming yet formidable giant, whose relentless pursuit of multidisciplinary collaboration was realized in such landmarks as the Sydney Opera House, London's Millennium Bridge and Channel Tunnel Rail Link, the Pompidou Centre in Paris, and Japan's Kansai Airport.

Trained as a philosopher and engineer, Arup had his idealism fanned by his contact with Bohemian intellectuals, the Bauhaus, Le Corbusier, and Russian émigré architect Berthold Lubetkin, his mentor. For Arup, art was "possibly the chief hope of mankind." But practical considerations, such as discovering that 89 percent of households in one postwar-London suburb had no bathroom, made him increasingly frustrated with architecture's abstract theories and reforms.

Arup & Arup, which he founded in London with his cousin Arne at the outset of World War II, prospered through national defense jobs: air-raid shelters, storage tanks, bridges, deep-water jetties. Jones provides fascinating insights into wartime building and postwar planning, both afflicted by the need for speed that propagated standardization at the expense of innovation. In 1946, after dissolving Arup & Arup, Ove founded a consulting practice that would become a partnership in 1949, and a vast global enterprise today.

Throughout his life, Arup was obsessed with creating the "composite mind"—formed of specialists who could synthesize a wealth of detail about materials, processes, and standards that no one architect, engineer, or contractor could master. He believed that only the widest cooperation from the earliest stage could yield architectural harmony.

Jones devotes three chapters to the contentious Sydney Opera House saga. Resolving the structure of Jorn Utzon's iconic roof shells propelled Arup onto a world stage, but his innovations were nearly eclipsed by the autocratic architect's romantic notions—budget and function be damned—of visual purity.

The narrative is peppered with the outsized personalities in Arup's wide circle—Freyssinet, Perret, Nervi, Candela, Mies, Wright—and masterfully situates them within the last century's structural and political discourse. Ultimately, Arup's legacy was not secured by engineering feats but by a working ethos that synthesized the highest aims of science and art and treated human beings as ends, not means. *Judith Dupre*

Materials for Design, *by Victoria Bell with Patrick Rand. New York: Princeton Architectural Press, 2006, 272 pages, $50.*

Authors Victoria Bell and Patrick Rand, both architects in Raleigh, North Carolina, argue that the "relationship between a project's aesthetics and its materiality" is more important than ever. After the faux veneers and antimateriality of Postmodernism, architecture is returning to its material roots—Mies's steel, Aalto's wood, Perret's concrete, and on to experimental plastic and metal alloys.

In *Materials for Design*, the authors impart a thorough knowledge of glass, wood, concrete, metal, and plastic. A weighty tome, the book is a reference tool, complete with histories, production techniques, and each material's properties, along with case studies of new work. In short, this is the textbook that many of us wish we had in architecture school.

Each chapter begins with a material primer, design considerations, production techniques, and in the case of metal, charts on weathering, corrosion, and galvanization. Sixty case studies—illustrated with good photography, readable plans, and helpful construction details—show how inventive architects have put these materials to imaginative use. The projects range from a Rural Studio chapel made of Chevrolet windshields to Hans Peter Wörndl's plywood-panel house in Austria to Heikkinen and Komonen's Max Planck Institute in Dresden, where thermostatic resins were electrostatically bonded to aluminum cladding.

The book indicates that architectural technology is most advanced in Germany. Of the book's three-score buildings, a quarter are in Germany, with the U.S. and Australia tied for second. Holland, Austria, Switzerland, Spain, and Japan also field exciting examples, with single entries from the Czech Republic, Canada, Ireland, Poland, Chile, and Bolivia.

There is so much information in this book that the publisher had to employ an irritatingly small font. Nevertheless, *Materials for Design* is handsomely produced, and marks an otherwise auspicious start for Princeton Architectural Press's foray into technical titles. *William Morgan*

Liquid Stone: New Architecture in Concrete, *edited by Jean-Louis Cohen and G. Martin Moeller, Jr. New York: Princeton Architectural Press, 2006, 248 pages, $65.*

Liquid Stone, based on a National Building Museum exhibition curated by Martin Moeller, is a serious attempt to grapple with concrete's complicated history, rich present, and revolutionary future.

Concrete is both a material and a process; it is as old as the Romans and as new as the Modernism with which it is inextricably linked. Its surfaces can be as raw as Le Corbusier's *beton brut* or in the hands of Richard Meier, as smooth as glass. Wright called concrete a "mongrel" material, Paul Rudolph likened it to mud, and Louis Kahn thought of it as "molten stone." The negative associations of Brutalism ("Concrete," Nikolaus Pevsner declared, "with all the shuttering marks can never be attractive") have been forgotten, as concrete has become architecture's most ubiquitous and varied material.

This handsome volume offers stunning color photos of work by Tadao Ando, Antoine Predock, and Steven Holl, evolutionary successors to Breuer, Saarinen, and Pei. There is Norman Foster's breathtaking Millau Viaduct, representing the perfect union of engineering and art. Then there are the high-wire aerialists of contemporary concrete: Santiago Calatrava's wavelike auditorium in Tenerife, which is the Sydney Opera House reborn, and Zaha Hadid's Phaeno Science Center in Wolfsburg, Germany, which pushes concrete beyond known limits.

Beyond the dramatic images, excellent essays on concrete's history, development, and acceptance (or lack of it) give *Liquid Stone* its real heft. The book reminds us of the heroic early years of concrete, with pioneers such as Perret, Hennebique, and Freyssinet, and it follows Modernism's constant battle between architecture and technology. It may have been clear to Kahn that concrete really wants to be granite, but the many experimental iterations discussed in *Liquid Stone*'s closing chapter suggest a tremendously exciting future for concrete. *William Morgan*

Failed Stone: Problems and Solutions with Concrete and Masonry, *by Patrick Loughran. Basel: Birkhaüser, 2006, 159 pages, $70.*

Human beings have been building masonry structures since before recorded history. You'd think we'd have it figured out by now. But Patrick Loughran's new book on the problems that continue to crop up in building with stone, concrete, and other types of masonry—and how to solve them or avoid them altogether—demonstrates that there is still lots of room for improvement.

Loughran takes the high road by not dwelling on who is at fault, though it's always fun to read who really screwed up. And there have been some beautiful screwups. My favorite from this book is Finlandia Hall in Helsinki, designed by Alvar Aalto and constructed from 1967 to 1971. The architect selected Carrara marble. His flat rectangular marble panels, only 1¼ inch thick, didn't stay flat for long. On the east, west, and south sides, where thermal cycling of the cladding was most dramatic, they morphed into a basket-weave texture. By 1991, safety nets were installed to protect passersby from potentially fractured and falling stone, and work began to correct the problem. Because the Finnish government declared Finlandia Hall a protected landmark, whose appearance had to be kept "equivalent to the original," recladding (to the tune of more than 3 million euros) was done in the same stone as the original, and failed even faster the second time.

Loughran recounts such failures to help those involved in making buildings treat stone and concrete with the care it deserves. He writes about the principles of materials and their proper use, and reconstructs how failures could have been avoided. Individual chapters cover thermal cycling, impact failures, efflorescence, surface defects, discoloration, corrosion, structural failures, and leakage. Each chapter concludes with lessons learned boiled down to bite-size pieces of information.

Failed Stone is informative, entertaining, and humbling, showing us why, after thousands of years of building with masonry, we still make mistakes. *Michael J. Crosbie*

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Nonprofit work experience: beneficial for all, but far too rare

Practice Matters

By Casius Pealer

Public and nonprofit practices are playing an increasing role in the professional development of young architects and yield great benefits for all concerned. The entrepreneurialism, close client contact, and quality design work achieved by those fortunate enough to obtain these positions make them desirable for traditional firms who want experienced interns. Yet the architecture profession does not support these unique training settings as thoroughly as professions such as law and medicine do, so both the interns who wish to gain this kind of experience, and those who are in need of services, go wanting.

Rose Fellow Jamie Blosser, AIA, was the owner's project manager on Tsigo Bugeh Village, a 40-unit affordable-housing project in Ohkay Owingeh, N.M. She says it gave her "valuable experience looking at projects from the perspective of the client." She wrote grants, worked with investors, dealt with approvals and oversaw design and construction.

Success stories

The Frederick P. Rose Architectural Fellowship is a national program that places architecture graduates in design positions with local nonprofit organizations for three years. "The common thread of the fellows' work is that they often make a project where there might not be a project otherwise" said Katie Swenson, FAIA, director of the Rose Architectural Fellowship and a former fellow herself. "In many ways, a nonprofit design experience is more entrepreneurial than working in a private firm would be."

The experience of Jamie Blosser, AIA, confirms this. Blosser spent three years as a Rose Fellow with the Ohkay Owingeh Housing Authority, a tribal housing authority located 25 miles north of Santa Fe, New Mexico. Her experience managing the development and construction of an affordable housing project, designed by Van Amburgh + Parés Architects, led to her current work as an associate and director of a Santa Fe firm, Atkin Olshin Lawson-Bell Architects.

"My role as the owner's project manager was to write the grants, market and work with the equity investor, manage the budget, deal with the politics of getting approval, and oversee design and construction. This experience has given me a much bigger idea of our role as architects," she says. Now when hiring people, she looks for evidence of community-based or public work, or some greater sense of personal responsibility. "I want to see if they only look at conventional models in their life or if they have a broader perspective. That reflects on their design ability and work ethic."

Shaun Patchell, a 2005 architecture graduate, worked for one year at Florida Legal Services in Tallahassee, Florida, through a fellowship with Design Corps, a Raleigh, North Carolina–based nonprofit. His assignment was to implement a design for high-quality modular farmworker housing, even though the client who commissioned the design backed out before he arrived. "I had to find a new client to demonstrate this could work, so I started attending farm-worker meetings and making connections with farmers themselves. I was selling an existing design to a nonexistent client." Eventually, Patchell convinced a willing farmer to build 10 units, and more may be built in the future.

Casius Pealer is an affordable-housing attorney at Reno & Cavanaugh in Washington, D.C. He was coeditor of ArchVoices *from 1999 to 2005.*

Patchell now works at KieranTimberlake Associates, a firm noted for its use of modular and prefabricated construction. His early experience rebidding the original farm-worker housing, and convincing potential clients to take on a new idea, will benefit him throughout his career.

Client contact

Young architects in nonprofit settings often receive a significant amount of direct client contact, which can be hard to get in early years with a large traditional firm. Louis B. Smith, AIA, is a senior architect at Commercial Builders & Architects in Charlotte, and chair of the AIA's Small Practitioners Forum. Early in his career, he learned to manage complex group dynamics while working on community development projects for a citizen's district council in Detroit. This was good experience for his current practice, doing design-build work for churches. "There is no substitute for learning how to educate a client without making them feel inferior," said Smith. "And this education process often happens in a community setting, where individual clients may be developing a project together for the first and last time."

Michael Pyatok, FAIA, of Pyatok Architects in Oakland, California, agrees with Smith, but for a different reason. He says, "Today, architectural practice requires healthy, able-bodied young people to plug in and become extensions of computers. That affects their willingness to stay in the field and to be energetic about design. Any opportunity for interns to be physically and emotionally involved with the consequences of their own actions is invaluable." Pyatok, whose practice includes significant affordable-housing work, hires interns who can demonstrate engagement in something larger than themselves. He believes they improve his firm's work environment and productivity.

Good deeds, good design

Good Deeds, Good Design is the title of a book edited by Bryan Bell, founder of Design Corps, that responds to the notion that the quality of nonprofit design work must inevitably be compromised. Max Bond, FAIA, a partner at New York's Davis Brody Bond and an architect noted for his interest in underserved communities, agrees with the premise of Bell's book. "I always thought that it is really an artificial separation. An interest in community and social issues in no way reduced my interest in design."

Bond should know. His early career mixed experiences at traditional firms with time spent working in Ghana's national construction company, as well as the Architects Renewal Committee of Harlem. He recognizes that he was afforded significant responsibility in those settings that young architects are typically not given. Bond's design work and thinking are more holistic as a result. He says when prospective employees are interviewed for his firm, "We try not to compartmentalize. We seek out employees who look at life a little differently."

Nonprofits in other fields

The architecture and engineering professions are unique in requiring a postgraduation internship that is typically completed entirely in a private firm setting. In other professions, providing for either a formal or informal internship is often done in conjunction with community or public service. Teaching hospitals, for example, help meet that profession's obligation to provide care to uninsured and indigent patients while simultaneously enabling recent graduates to gain significant practical experience. According to the Association of American Medical Colleges, teaching hospitals constitute only 6 percent of the nation's hospitals, but they provide nearly half of all hospital charity care. Although medical residents hold a limited license or permit to practice, they remain under professional supervision during their residency.

Blosser worked with Van Amburgh + Parés Architects on the Tsigo Bugeh Village project.

The legal profession does not require a formal internship, but recent graduates and their employers still confront the challenge of transitioning from an academic to a professional setting. The National Association of Law Placement estimates that 10 percent of 2006 law school graduates took what are typically one-year positions as judicial law clerks in federal and state courts. These clerkships provide invaluable direct experience for recent graduates in a public setting, and graduates with this public experience and perspective are highly sought after by private law firms.

Supply and demand

The design fellowships described above are the two most significant opportunities for young architects looking for these kinds of opportunities, yet together they account for less than 10 positions annually for approximately 4,000 professional degree graduates. Although specific data on the total number of architecture graduates taking design positions with nonprofit or community-based organizations does not exist, Beth Miller, who directs the Community Design Collaborative of AIA Philadelphia, argues that there is far more interest on the part of young people than there are opportunities supported by the profession. "There are lots of young people who would love to take a full-time job in a nonprofit," says Miller. The Collaborative recently established a full-time position of its own for a design fellow, but can support just one fellow on a two-year rotation.

One of Miller's goals for the Collaborative is to expand the demand for full-time architectural services by community-based organizations. She does this in part by changing the perception of the role architects play. "Many organizations tend to hire design services as consultants, on a case-by-case basis," says Miller. "We try to get the ones we work with to see the value of having an architect on their board or even on their staff, to encourage a better understanding of the role of design in their community revitalization efforts."

In addition to changing the perceptions of potential clients, nonprofit experiences can be useful for interns in broadening their own views of what architects can and should do. Leslie Norvell agrees. Norvell is a landscape architect who has spent time volunteering for Miller's Community Design Collaborative and who works full-time in a local landscape-architecture firm, Lager Raabe Skafte Landscape Architects. "It's one thing to watch someone else do something and think, 'Oh, I would do this differently.' And it's another thing to be in the hot seat yourself."

Given the concerns often expressed by architects about the transition from education to practice, there would seem to be significant potential for the profession to formalize positions for young architects to work in community settings. The fact that other professions have institutionalized this kind of practical training of recent graduates to meet community needs implies that the architecture profession may have a duty here as well as an opportunity. In the meantime, individual interns and the firms that hire them will continue to seek out and benefit from singular experiences in local nonprofits. ■

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Trade Show Review Milan • Salone del Mobile

Walking the rows of this renowned furniture fair, held this year during an uncomfortably warm week in mid-April, it's easy to spot the latest work by the industry's top product designers, many of whom are also architects. For a roundup of the accompanying Euroluce exhibition, see page 181. *Rita Catinella Orrell*

1 Plastic pushers Made of clear or translucent dyed polycarbonate, Thalya, by Patrick Jouin (right), utilizes a gas injection technique to give the plastic new levels of strength while keeping it lightweight. The Mr. Impossible chair (center), by Philippe Starck with Eugeni Quitllet, is created by welding a transparent structure to a clear or colored seat shell, resulting in a surprising design effect. Toobe, the company's first floor lamp, is made of a PMMA extruded tube. Designed by Ferruccio Laviani, the lamp is "faded" through a special coloring technique, allowing light to be diffused within the cylinder. Kartell, New York City. www.kartell.it **CIRCLE 200**

2 Leather-mesh screen An evolution of last year's coach-hide-mesh Loom chair, the Loomy screen is designed by Franco Poli. Two elliptical metal frames hold the coach-hide mesh in place, creating a 3D, self-supporting partition. The screen creates separate areas without obstructing views and is ideal for residential, office, or retail applications. M2L Inc., New York City. www.matteograssi.it **CIRCLE 201**

3 Leaves and webs Among other new features, the Storage system by Piero Lissoni and Porro now offers coplanar electric leaves to make the opening movement faster and easier, while new transparent glass leaves enclosed in a thin iron profile allow for clear interior views. Also from Porro is an updated version of Synapsis, a lightweight table designed by Jean-Marie Massaud that features a web of welded metallic tubes that delicately support a wooden top. Boffi USA, New York City. www.porro.com **CIRCLE 202**

Origami folding chair The Isis olding chair folds completely flat when losed, and looks razor thin from the ide. It features an easy close system, a atural wood frame, and plywood panels. ebrüder Thonet Vienna, Tolentino, Italy. www.thonet-vienna.com **CIRCLE 203**

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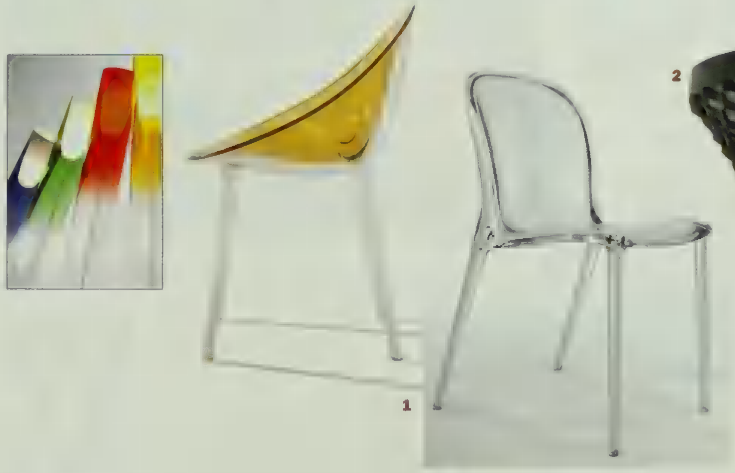

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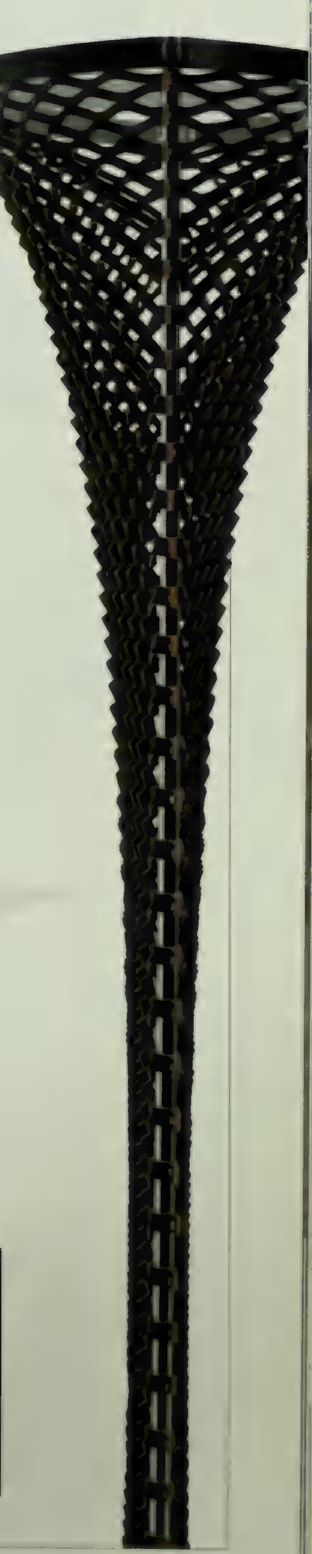

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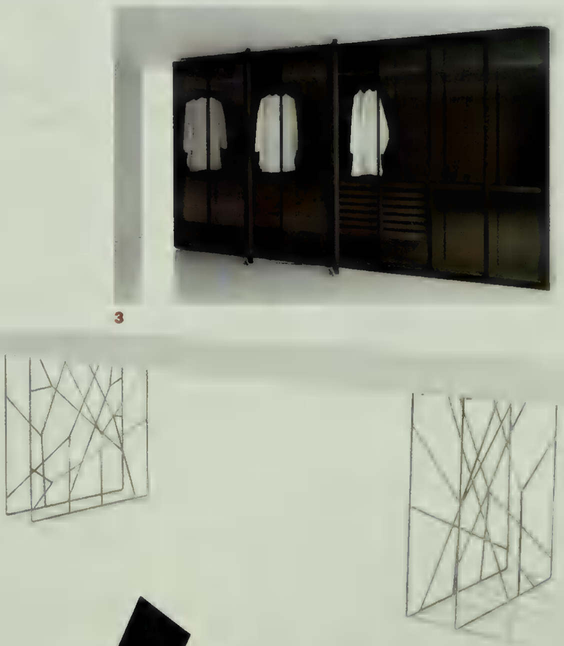

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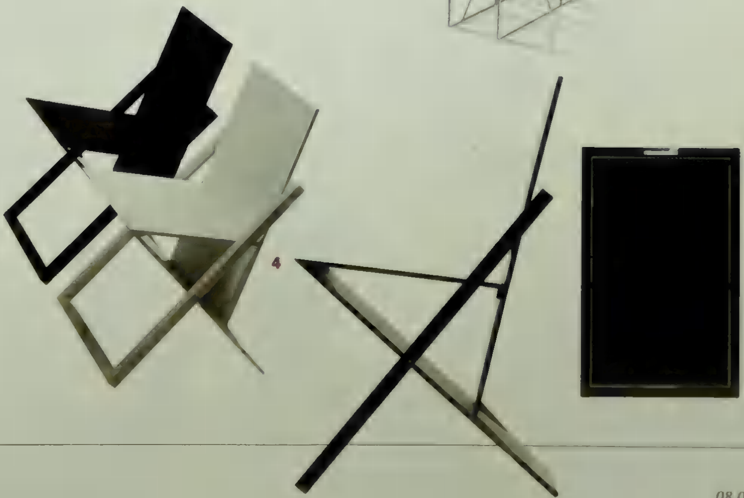

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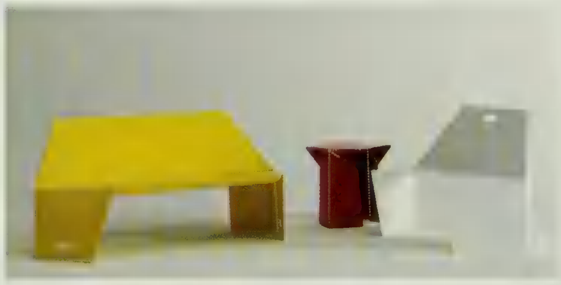

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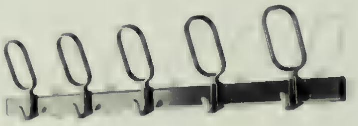

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9

5 Bent and spun Vertigo (far left) is the first project for Moroso by Laura Aquili and Ergian Alberg, a partnership born in the London studio of Zaha Hadid. Inspired by M.C. Escher, the Corian table is designed to give the illusion of movement. Bent (near left), by Christophe de la Fontaine and Stefan Diez, is an addition to Moroso's outdoor collection. The colorful tables and chairs are made of laser-cut, bent, powder-coated aluminum. Moroso USA, New York City. www.morosousa.com **CIRCLE 204**

6 Decorative support The Ribbon stool, designed by Nendo, is made from laser-cut metal strips that both decorate and support. An upholstered seat cushion is attached via a magnet. Cappellini, New York City. www.cappellini.it **CIRCLE 205**

7 No static The Prime Time storage unit helps conceal the boxes and cables that clutter entertainment units by leaving the flat-screen television as the protagonist. All the boxes are placed inside containers equipped with cable channels for connections. Pallucco, Treviso, Italy. www.pallucco.com **CIRCLE 206**

8 Hanging around The Birds on a Wire wall coat hanger was designed by the hot British design duo Edward Barber and Jay Osgerby. It's made of an anodized-aluminum wall bar with hooks in polished die-cast aluminum or painted in polyester powder. Leif Petersen, Larkspur, Calif. www.magisdesign.com **CIRCLE 207**

9 Polyethylene planters Made of a polyethylene body and a brushed-steel base, the Missed Tree pot (center) by Jean-Marie Massaud comes in both a single body and a "branching" form. The sinuously shaped Flow pot (near left) by Zaha Hadid and Patrik Schumacher comes 6 ½' or 4' high in lacquered black or white. The New Wave planter (far left), by Ross Lovegrove, has a compact, liquid form in chrome, white, or black. Serralunga, Biella, Italy. www.serralunga.com **CIRCLE 208**

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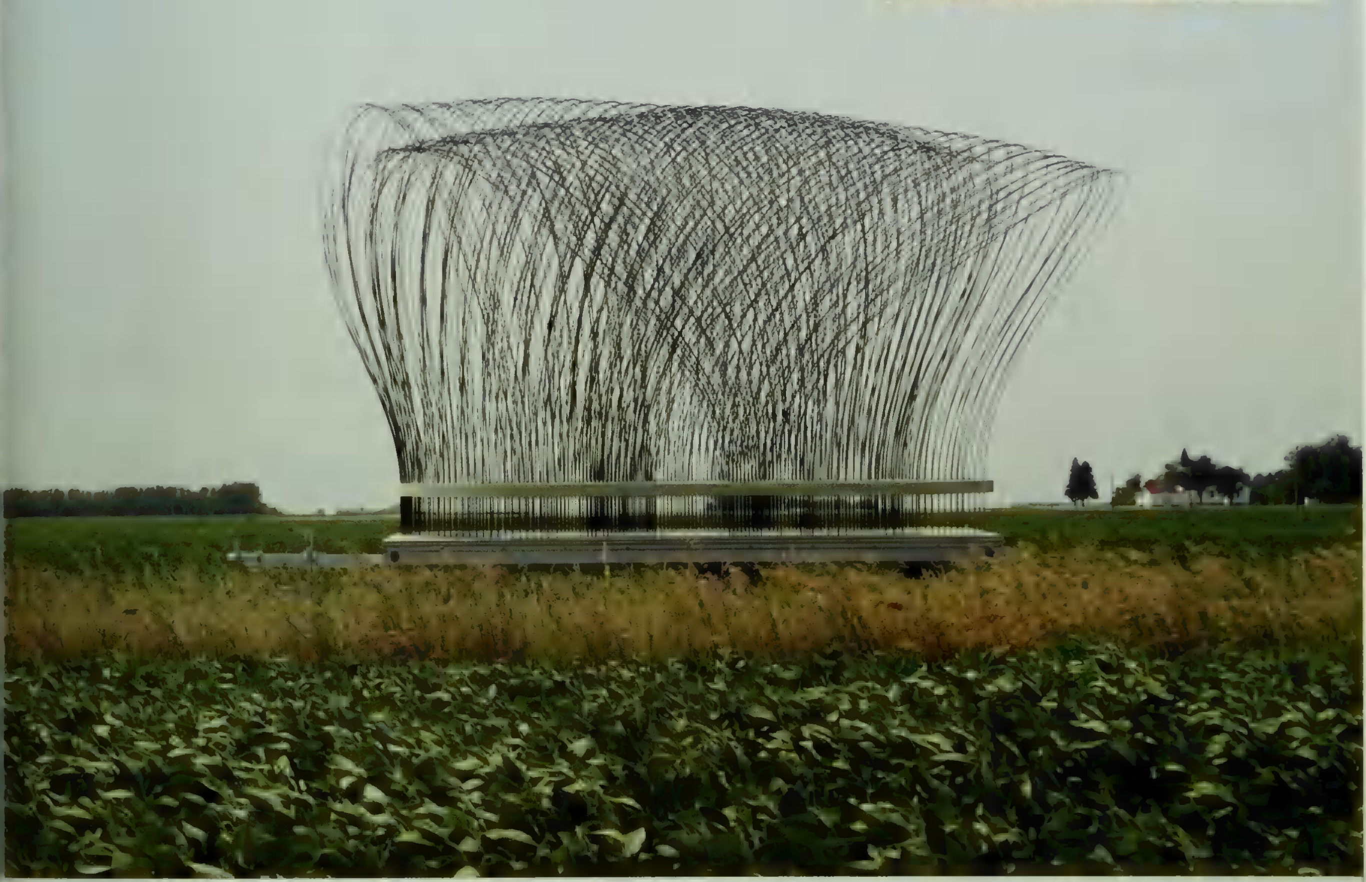


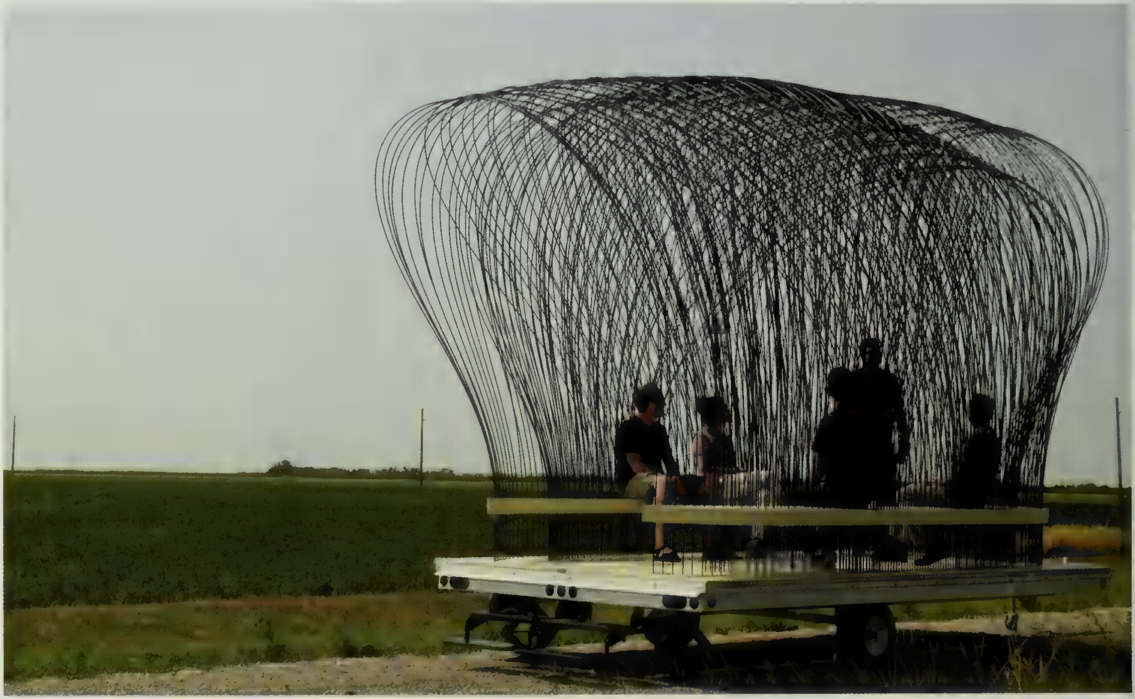
By David Sokol

A family designs a little chapel on the prairie

To raise a diaphanous, miniature chapel, Fargo, North Dakota architect Richard Moorhead raised a family first. Despite their mom's urging them to avoid the profession, Granger and Robert Moorhead cite their father for sparking their interest in design, and today the brothers, both in their thirties, are principals of their own architecture and industrial design firm, New York–based Moorhead & Moorhead.

Although father and sons are separated by half a continent and more than three decades, Granger says the Moorheads "share a core value system" that made an easy job of Mobile Chaplet, the trio's first collaboration.

In 2005, Fargo-based abstract painter Marjorie Schlossman launched the Roberts Street Chaplet Project, inviting Richard Moorhead and five other local architects to design small chapels that would be moved around the state by truck. Inspired by the Rothko Chapel in Houston, the



To create the Mobile Chaplet, Richard, Granger, and Robert Moorhead fashioned 200 thermoplastic composite rods into a double-canopy shape, inserting them through a floating bench and into a trailer deck.

spaces would feature Schlossman's work and would function as public contemplation areas—none of the art is for sale, and admission is free. Moorhead, remembering that his sons had worked on a small-scale project with the New York–based nonprofit public arts organization Creative Time, initiated a reunion.

The Moorheads sought inspiration from video footage taken of Schlossman in her studio. "I think of it as very loose and gestural," Granger says, describing how the artist interacts with her canvases. The team decided to express those broad, yet linear movements architecturally.

The younger men took the lead, tapping into a family of patterning concepts that Moorhead & Moorhead had been exploring. Their Filament Wound Bench, for example, features carbon fibers wrapped around a reusable core. Similarly, for the Mobile Chaplet, the designers decided to mount 200 30-foot-long, thermoplastic-composite rods into a 128-square-foot trailer bed and lace them into an abstract canopy shape.

Robert and Granger carefully plotted the rods' connection points, arranging them in inner and outer shells, but, Robert points out, "They were allowed to have a less specific relationship at the top of the weave." So while the core of the Chaplet comprises straightforward arcs, the rods along the edge take on more sinuous shapes. The final result—which the three men built together—not only references Schlossman's sweeping gestures, but also assumes the form of a church nave, a Conestoga wagon, or, from a distance, a stray thundercloud.

If North Dakotans are not reflecting on the architecture's myriad meanings, they can turn their gaze toward vistas framed by the permeable Mobile Chaplet. "The weaving has an engagement with the landscape while still feeling enclosed," Granger explains. Stressing that link, the rods run through a bench, supporting it with stainless-steel collars that make it appear to float like a second horizon line. Or, for another experience entirely, visitors can just look at their feet: For Schlossman's contribution, the client/artist painted an abstract landscape mural on the floor. ■

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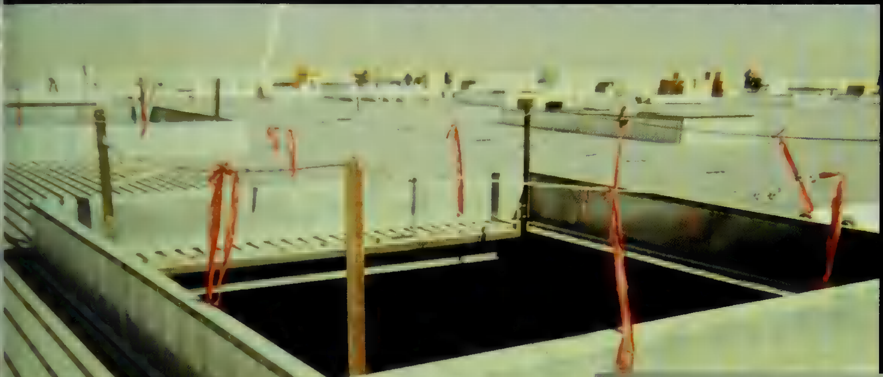

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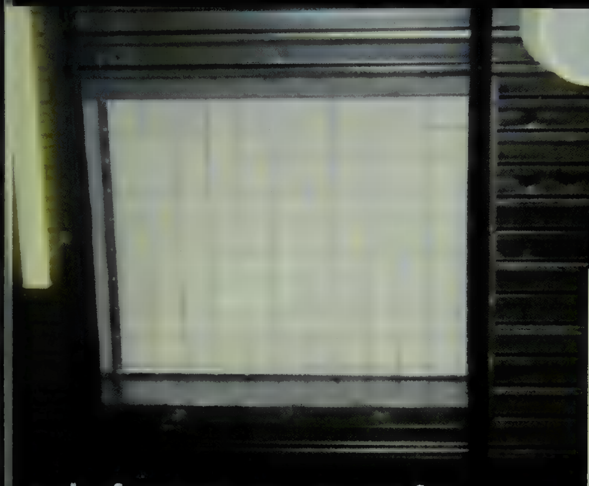

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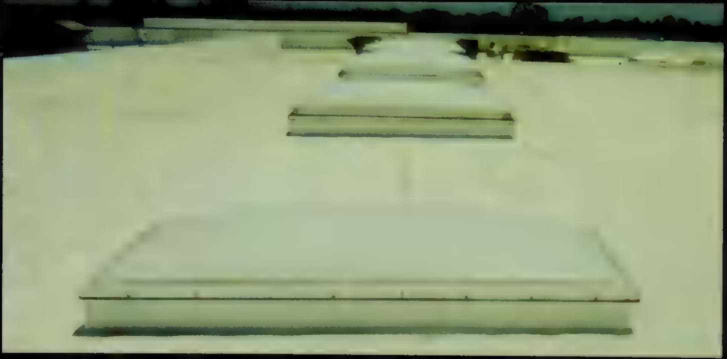

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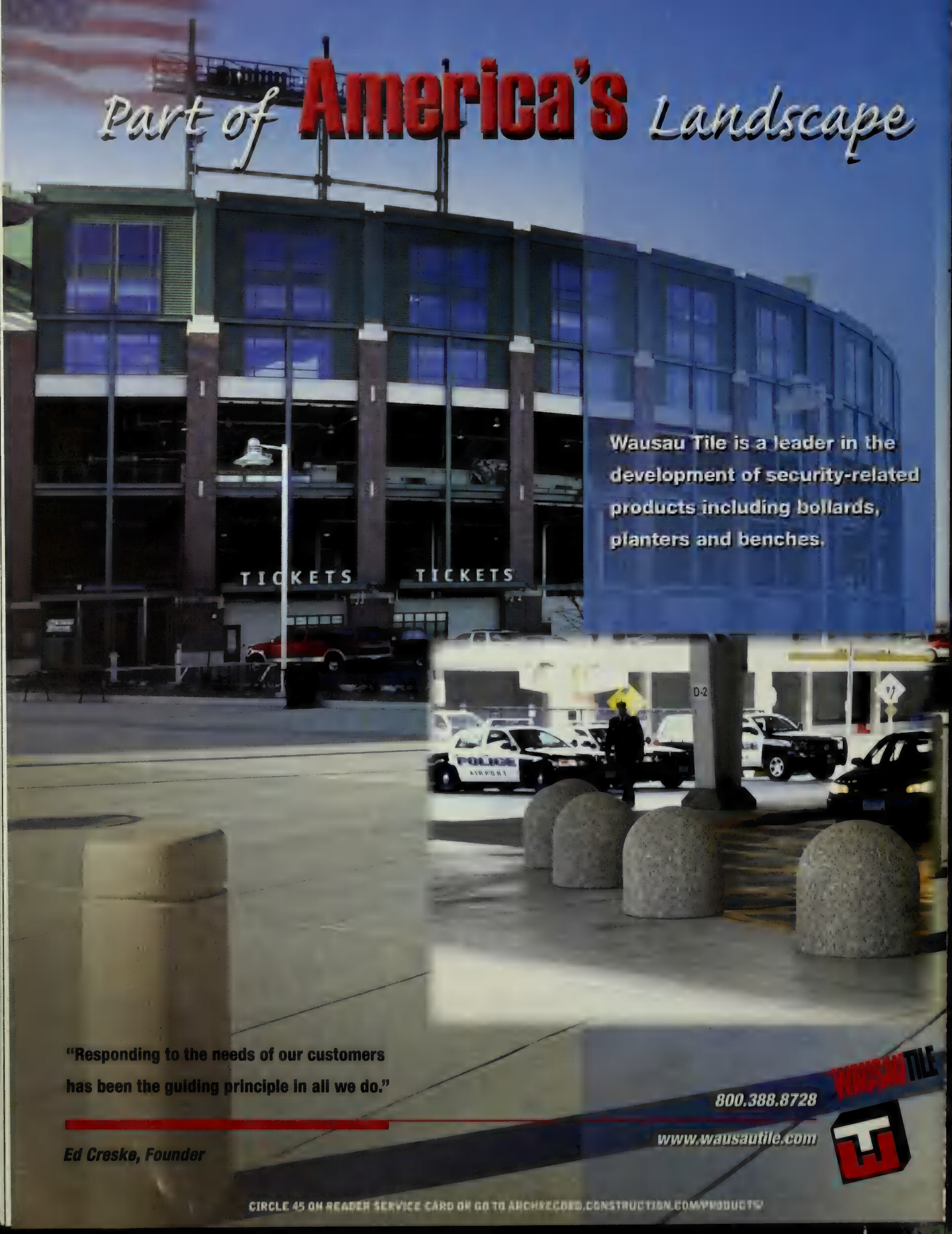

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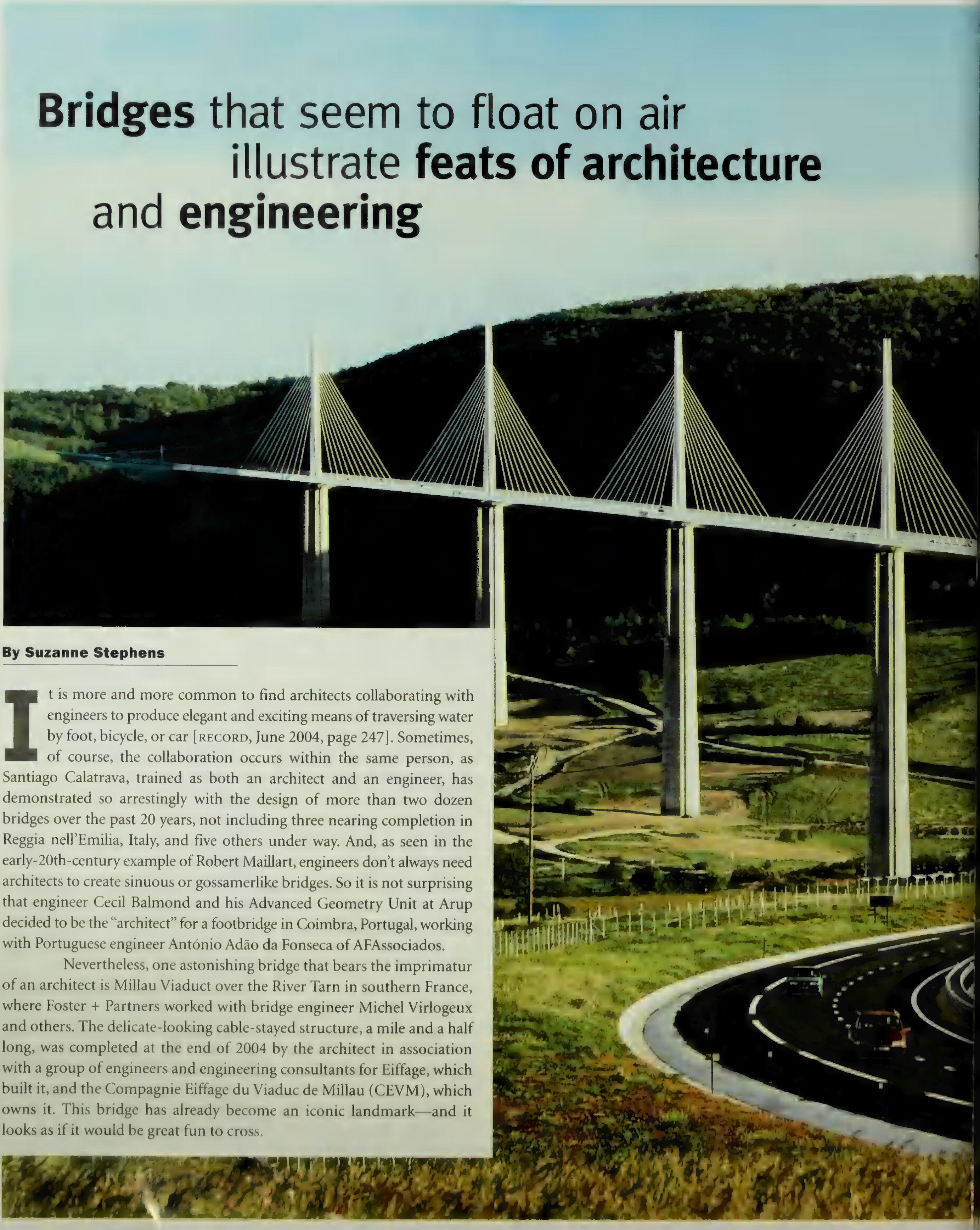
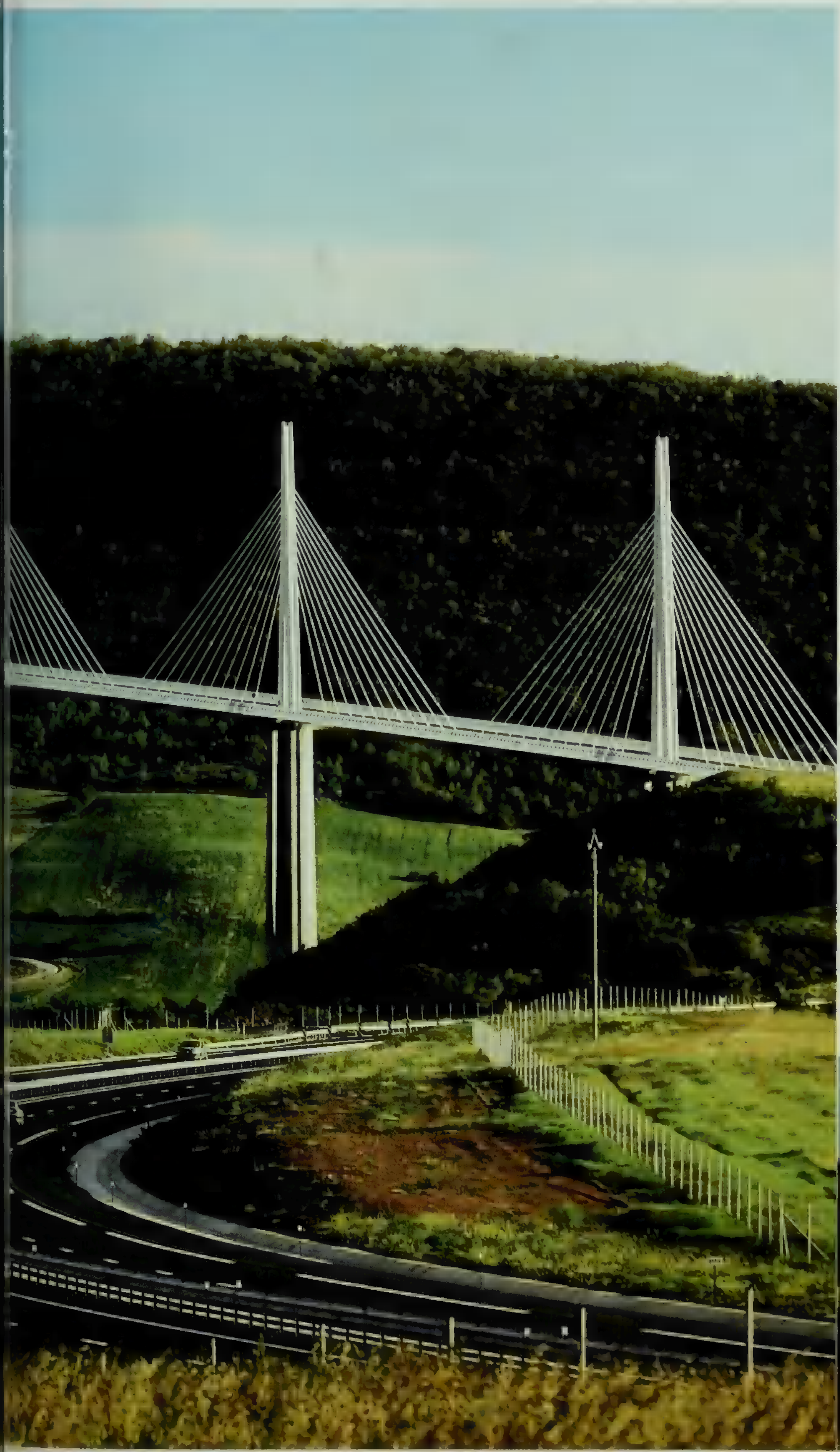
Bridges that seem to float on air illustrate **feats of architecture** and **engineering**

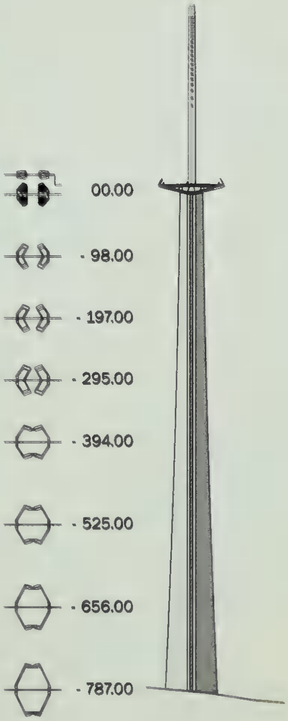


By Suzanne Stephens

It is more and more common to find architects collaborating with engineers to produce elegant and exciting means of traversing water by foot, bicycle, or car [RECORD, June 2004, page 247]. Sometimes, of course, the collaboration occurs within the same person, as Santiago Calatrava, trained as both an architect and an engineer, has demonstrated so arrestingly with the design of more than two dozen bridges over the past 20 years, not including three nearing completion in Reggia nell'Emilia, Italy, and five others under way. And, as seen in the early-20th-century example of Robert Maillart, engineers don't always need architects to create sinuous or gossamerlike bridges. So it is not surprising that engineer Cecil Balmond and his Advanced Geometry Unit at Arup decided to be the "architect" for a footbridge in Coimbra, Portugal, working with Portuguese engineer António Adão da Fonseca of AFAssociados.

Nevertheless, one astonishing bridge that bears the imprimatur of an architect is Millau Viaduct over the River Tarn in southern France, where Foster + Partners worked with bridge engineer Michel Virlogeux and others. The delicate-looking cable-stayed structure, a mile and a half long, was completed at the end of 2004 by the architect in association with a group of engineers and engineering consultants for Eiffage, which built it, and the Compagnie Eiffage du Viaduc de Millau (CEVM), which owns it. This bridge has already become an iconic landmark—and it looks as if it would be great fun to cross.

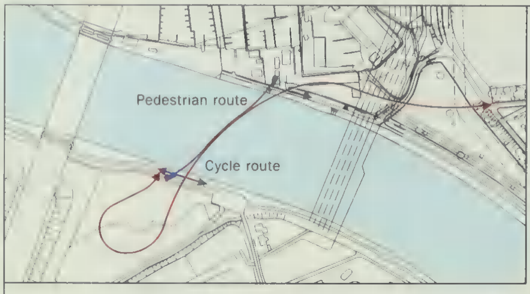




Millau Viaduct, Millau, France,

Foster + Partners, et al

The competition-winning cable-stayed bridge owned by Compagnie Eiffage du Viaduc du Millau (CEVM) is the tallest automobile bridge in the world. Its seven concrete piers range from 256 feet to 800 feet in height, and steel pylons above the steel-box road bed add another 318 feet. Foster + Partners worked with advisers to CEVM, plus three Paris-based firms—Europe Etude Gecti, Thales Group, and Societé d'Etudes R. Foucault et Associés—on this 1½-mile-long bridge, where 11 pairs of cables support each of eight spans.

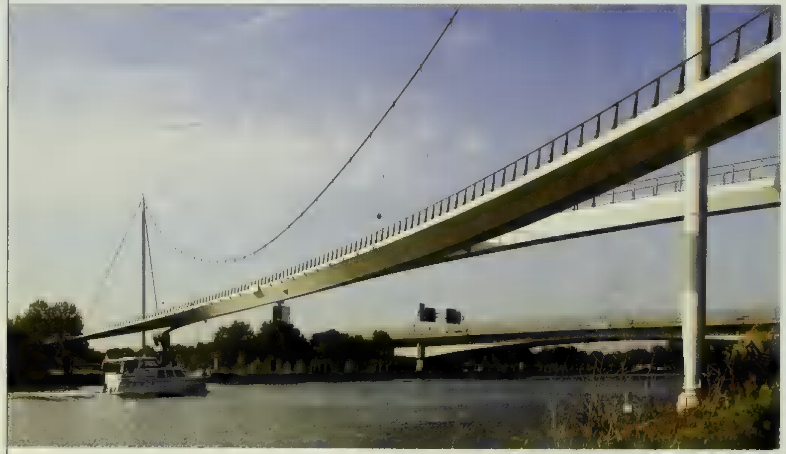


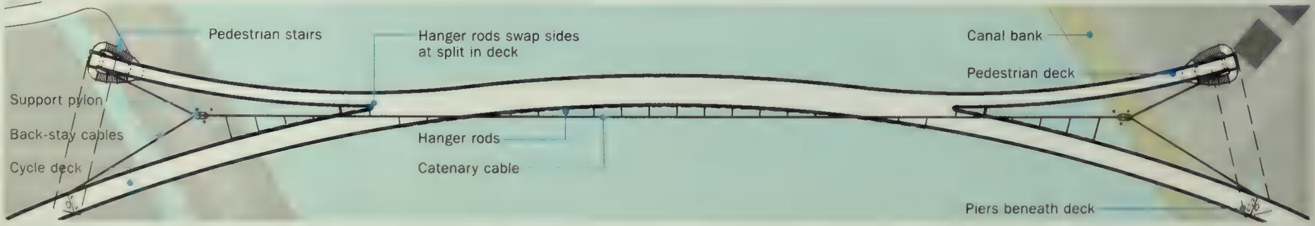
The bridge guides both pedestrians and bicyclists in separate sinuous paths across the Rijn Kanaal to link the new suburb of IJburg with Amsterdam.

Nesciobrug, Amsterdam, the Netherlands,

Wilkinson Eyre/Arup/Grontmij

In designing a pedestrian and bicycling bridge outside Amsterdam in 2006, the London-based architects Wilkinson Eyre worked in association with Arup's structural engineers and Grontmij (specialists in concrete work). The Nesciobrug (Nescio Bridge), the first suspension bridge in the Netherlands, spans 535 feet (2,559 feet including approaches). It links the new suburb of IJburg being developed on reclaimed land to the city of Amsterdam. In order to keep the bridge from being too assertive in the landscape, the architects and engineers decided on the monocable, self-anchored suspension structure that gracefully curves and splits as it crosses the Rijn Kanaal. The two forms of traffic are guided along diverging paths, 11 feet wide for cyclists, and 7 feet for pedestrians. A curved, steel box girder provides the deck for the bridge, which allows a clearance of 30½ feet beneath it for commercial shipping. Each of the separate decks continues beyond the masts, with back-stay cables supporting them.





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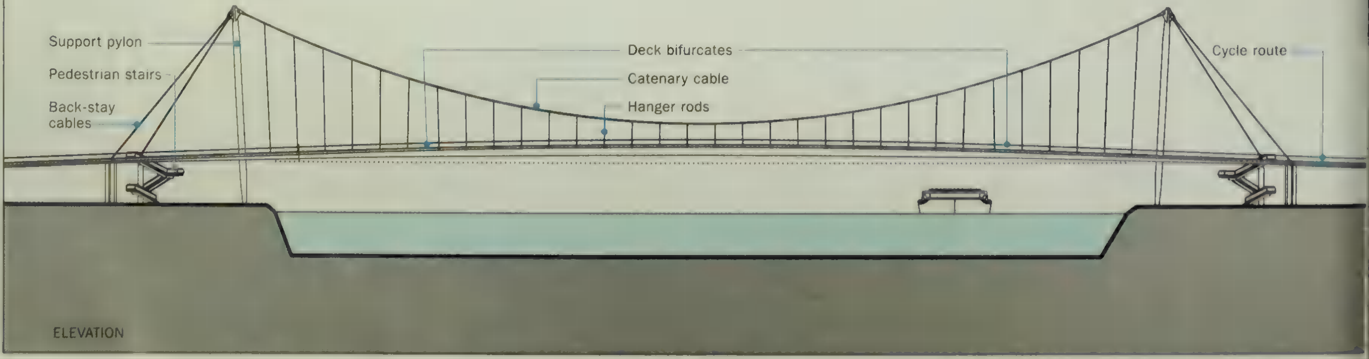

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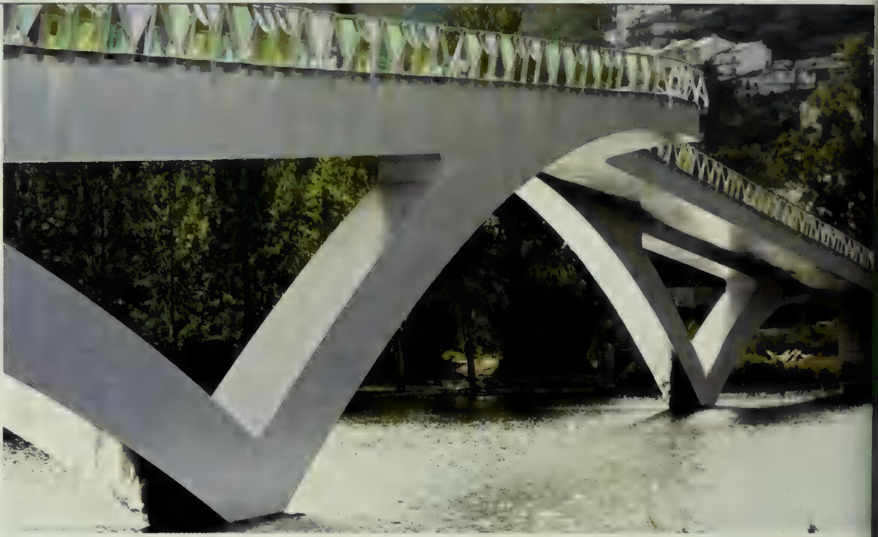
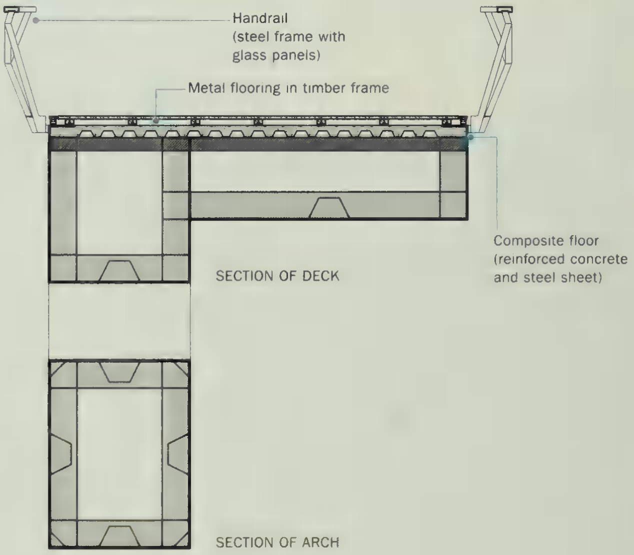
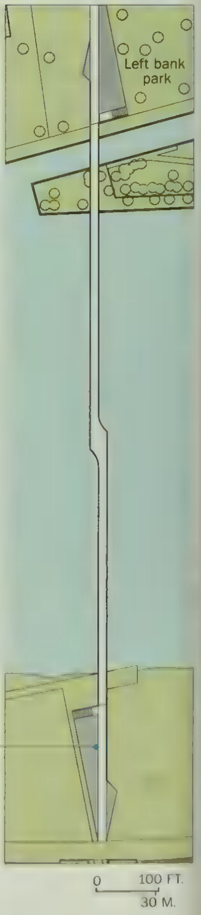
Footbridge, Coimbra, Portugal,

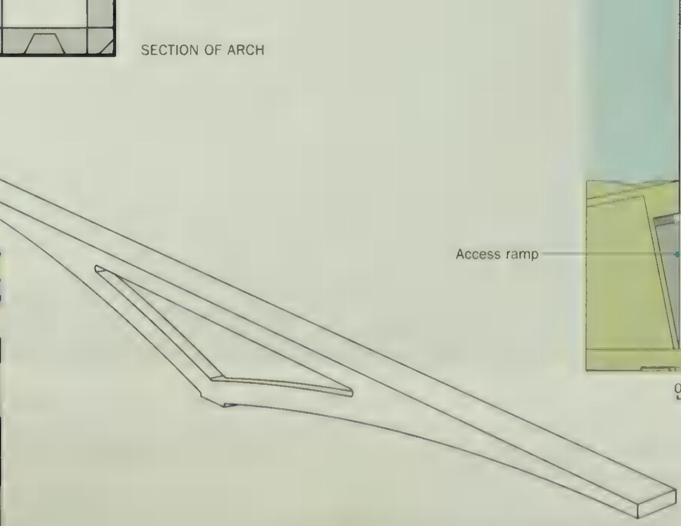
Cecil Balmond and
António Adão da Fonseca



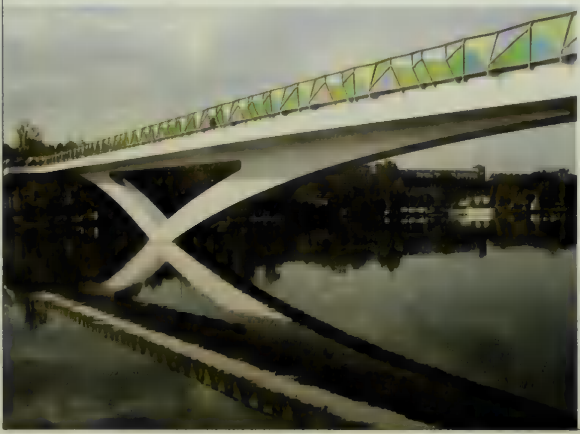
In designing a pedestrian bridge for the Rio Mondego near the town of Coimbra in central Portugal, the engineer Cecil Balmond of Arup's Advanced Geometry Unit in London acted as the architect, working with Portuguese engineer António Adão da Fonseca and AFAssociados. Named the Pedro and Inês Bridge, after an ill-fated romance of yore, the 266-foot-long bridge does not appear to meet in the middle. Balmond and Adão da Fonseca devised a solution where two cantilevered spans push against one another as they transfer opposing loads onto the arched piers. A central parabolic arch and two lateral arches of steel with reinforced-concrete piers and abutments form the structure, and wood surfaces the concrete and metal deck. While the basic form is reminiscent of Maillart's Rhine River Bridge at Tavanasa of 1905, this 2007 version, with its jog, definitely has a new twist. To top it off, Balmond designed a jagged balustrade featuring colored-glass facets in a steel framework.







PERSPECTIVE OF BRIDGE MODEL



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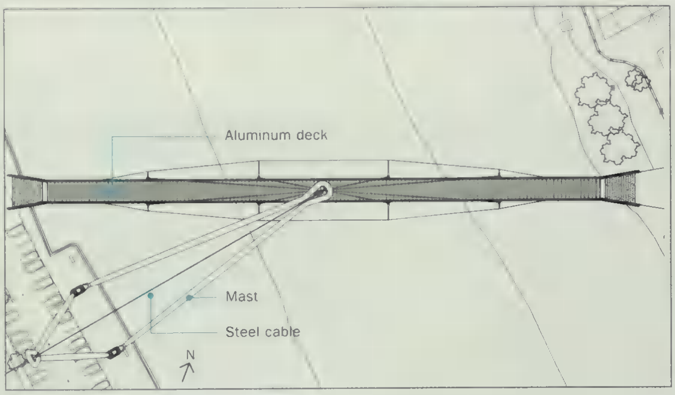
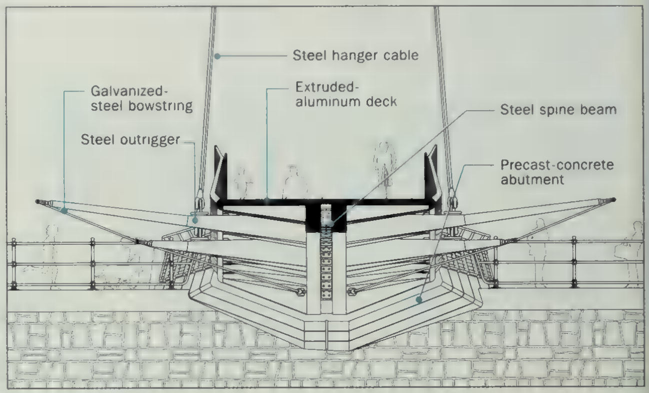
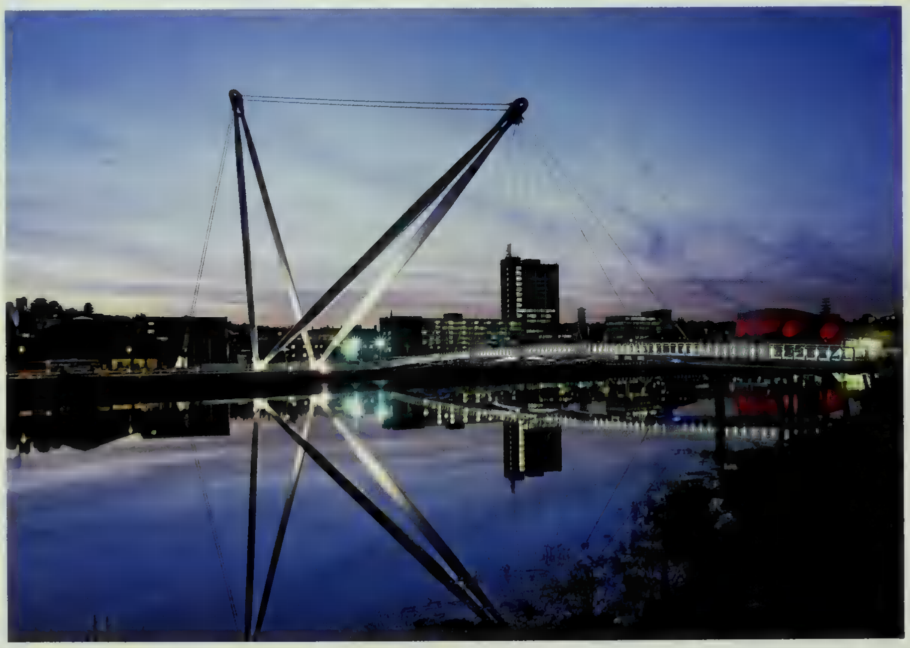


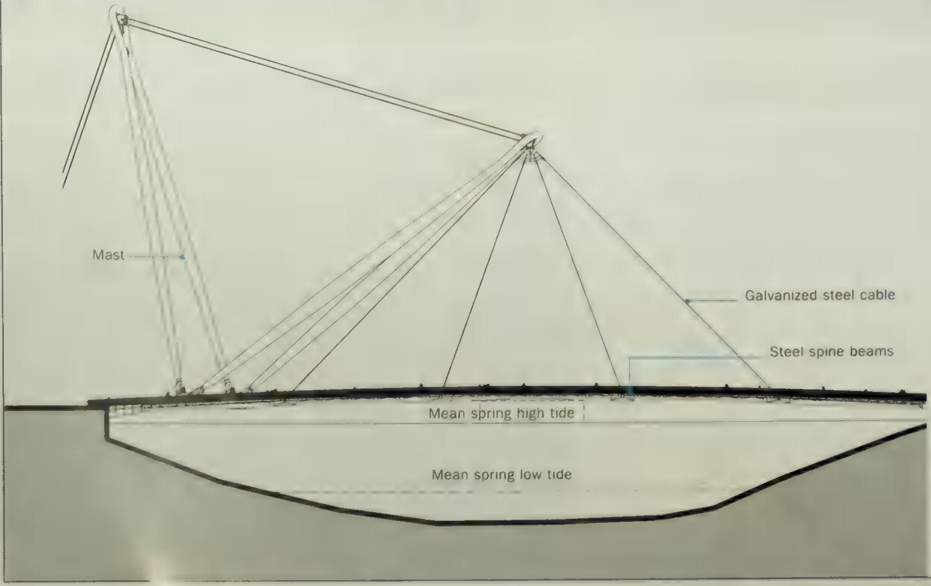




River Usk Footbridge, Newport City, South Wales,

Atkins/Grimshaw/Alfred McAlpine

A competition-winning scheme for the design of a footbridge in South Wales employs a four-masted steel structure evocative of the sailing ships that long ago docked at the trading wharves of Newport City. The boatlike design, completed in 2006, resulted from the collaboration of a team where Grimshaw acted as a subconsultant to Atkins civil engineers, a firm employed by the contractor, Alfred McAlpine. The masts, which are paired on the west bank of the River Usk, support the 476-foot-long bridge deck, 16 feet wide, for pedestrians and bicyclists. The shape generates a dynamic presence on the river owing to the length of the masts: The forward mast extends 262 feet; the back mast, 230 feet. Cables, 5 inches in diameter and 260 feet long, transfer the deck's loads to the ground and act as back stays for the masts, while two precast-concrete abutments connect the bridge on the east and west banks of the River Usk.



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- Contract Documents introduced two new standard-form contracts: C160™-2007, Digital Data Licensing Agreement, and E201™-2007, Digital Data Protocol Exhibit to address transmission and control of digital data.
- The AIA is part of a coalition attempting to repeal a tax provision that would require the government to withhold 3 percent of all payments on government contracts, including design.
- Current TV, a global online television network, produced an eight-minute segment, titled "Green by Design," about the AIA Committee on the Environment's Top Ten Green Projects.
- A beta version of Soloso, the new collaborative knowledge tool under development, debuted at convention to get member feedback. Official launch is scheduled for fall 2007.
- Registration was more than 21,000 for the 2007 AIA National Convention in San Antonio which themed all workshops, seminars, and general sessions around sustainable design.
- Two microsites launched on the Web to educate prospective clients on working with an architect. See *http://howdesignworks.aia.org*.
- The AIA layers on Google Earth debuted in San Antonio, introducing large new audiences to an understanding of what architects do. One layer focuses on America's Favorite Architecture, and a second on Blueprint for America initiatives around the country.

We thank our members for their faith in the Institute and active participation in moving the profession forward to benefit your clients, communities, and the built environment. Look for more innovation and progress in the days and months ahead, but be assured that we continue to watch our fiscal performance as we act [illegible] stewards of our members' dues.

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Operating Revenue	$58,923	$58,974
Operating Expense	(57,639)	(55,688)
Operating Net Income	1,284	3,286
Investment Income	120	2,460
Total Net Income	**$1,404**	**$5,746**

AIA BALANCE SHEET ($000'S)

	Audited 2006	Audited 2005
Assets		
Cash	$ 2,977	$ 2,791
Investments	34,645	26,844
Accounts Receivable	3,548	2,197
Prepaid Expenses	1,744	1,529
Contributions Receivable (AIA150)	1,029	—
Inventory	3,034	2,399
Fixed Assets (Net)	5,907	7,171
Other Assets	665	750
Total Assets	**$53,549**	**$43,681**
Liabilities		
Line of Credit	$–	$–
Accounts Payable	7,676	5,311
Deferred dues and other revenue	11,694	10,063
Deferred Contract Doc Revenue	6,745	5,915
Notes Payable	13,427	14,131
Total Liabilities	**39,542**	**35,420**
Net Assets		
Unrestricted	9,827	5,474
Temporarily Restricted	3,442	2,049
Permanently Restricted	738	738
Total Net Assets	**14,007**	**8,261**
Total Liabilities & Net Assets	**$53,549**	**$43,681**

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There's no waiting for multiple deliveries, no field-cutting of flashing-rolls, no time spent installing separate components! That's why TOTAL*Flash* installs twice as fast as common alternatives, slashing time & labor by 50% (or more)! **And it's available in sizes for easy use in Renovation/Remediation!**

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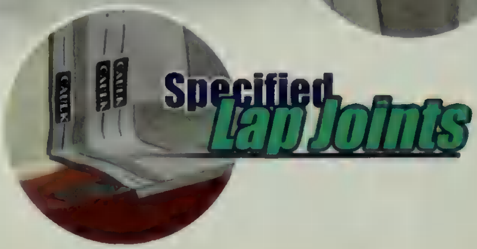

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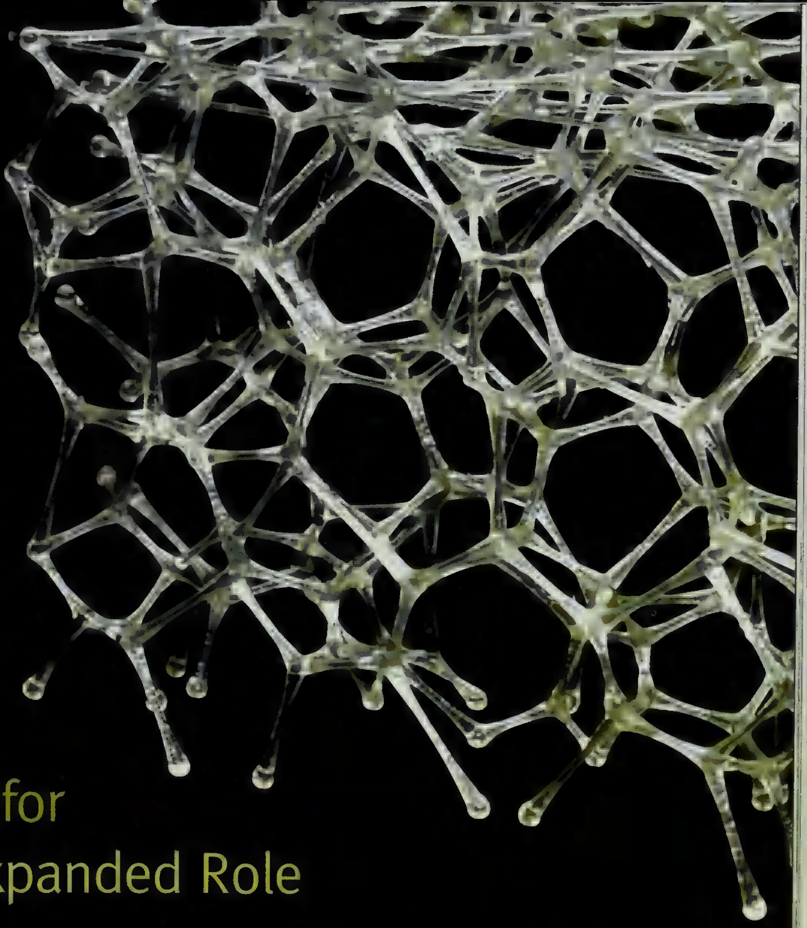
PTW Architects and Arup collaborated on the cellular steel structure (shown as a model) for the Watercube aquatics center currently in construction for the Beijing Olympics.



INTRODUCTION

The Strange, New World for the Engineer's Expanded Role

The "spectacular" architecture routinely featured in RECORD relies more than ever on the ingenuity, creativity, and yes, patience of the contemporary engineer. This species of professional, as much a creation of the modern era as anything else, now occupies a central place at the beginning of the design process, forever transforming how architecture relates to our cities, culture, and ourselves.

In this issue, we present a brief history of integrated design, focusing on the rise of the structural engineer. As part of that story, we feature an atlas of great mechanical and structural engineers—old and new—who have contributed substantially to architecture, either through built work, a philosophy of design, or a firm's legacy, as well as through collaboration. We also offer a collection of recent bridges illustrating a more traditional role of the engineer as designer.

Our August projects—San Francisco's Federal Building; Bangkok's airport; Lufthansa's headquarters in Frankfurt, Germany; and Portland, Oregon's aerial tram—all embody the principles of the new engineer, one who is willing to take risks to engage the realities of the changing environment and capable of thrusting new forms and technology into our world. We then offer an overview of recent skyscraper projects, and close with an exploration of the designs for New York City's newest subway line. Like the interconnected structural bubble frame of PTW Architects' and Arup's Watercube for the Beijing Olympics (above), we imagine the expanded role of the engineer will continue to supply architecture with limitless opportunity. *Russell Fortmeyer*

The Engineer's Moment

By Nina Rappaport

A shift in the architecture profession, already entrenched with issues of control and authorship, affords the engineer an expanded role during initial project design discussions, not just as consultants after the fact. Structural engineers like Chris Wise—formerly of Arup, now at Expedition Engineering—are literally drawing at the table, which is how he explains his collaboration at Arup with Norman Foster's office on London's Millennium Bridge. Engineers are featured prominently in conceptual design discussions, and they are even once again writing books on their philosophy of structures. The blurring of professional boundaries between architect and engineer is making the design process more flexible and malleable, and thus experimental, providing a new space for the structural engineer to merge the overemphasized divide between math, nature, technology, and design.

In part, this shift is due to a renewed interest in structures by contemporary architects, such as the Office for Metropolitan Architecture with Cecil Balmond, Michael Maltzan and Steven Holl with Guy Nordenson, Toyo Ito and Arata Isozaki with Mutsuro Sasaki, Coop Himmelb(l)au with Bollinger & Grohmann, to name just a few. This paradigm has emerged through intense collaboration, open design dialogue, and radical advances in digital design and fabrication technology, resulting in new arrangements of the "bones" of a building, the design of occupiable structural elements, new structural "skins" to envelop massive spaces, form-finding, and environmental integration. Structural designs that embrace a new holistic integration have also been inspired by the internal structures of nature, as found in things such as crystals, coral, and bones. Engineering falls between science and art, intuition and empiricism and is thus often not accepted in its full creative potential. Creativity results from intuitive interpretation of first principles of physics, mathematics, and code, which, while abstract, can result in new, nonstandard techniques in the physical world. Structure, so often only discussed in terms of economy and efficiency, is also about aesthetics.

In considering the rise of the contemporary engineer, what comes to light are three important moments of design input in the past century: the early Modern era; the 1950s; and again today, where geometry, structures in nature, and collaboration all play a role in shaping new spaces as described in this rather brief history. During the early Modern movement, the engineer came into the foreground, with or without architects, often patenting structural steel and concrete inventions for large spans, such as those by Owen Williams for Boots, Giacomo Matte-Trucco for Fiat, or the shell structures of Pier Luigi Nervi. Robert Maillart became a de facto Modern designer with his minimal bridge structures in Switzerland, as did the anonymous American engineers of grain silos admired by Erich Mendelsohn and Le Corbusier. The late London structural engineer Ove Arup started his career designing projects in concrete with Tecton Architects, such as London Zoo's Penguin Pool (1934), which Arup designed with engineer Felix Samuely.

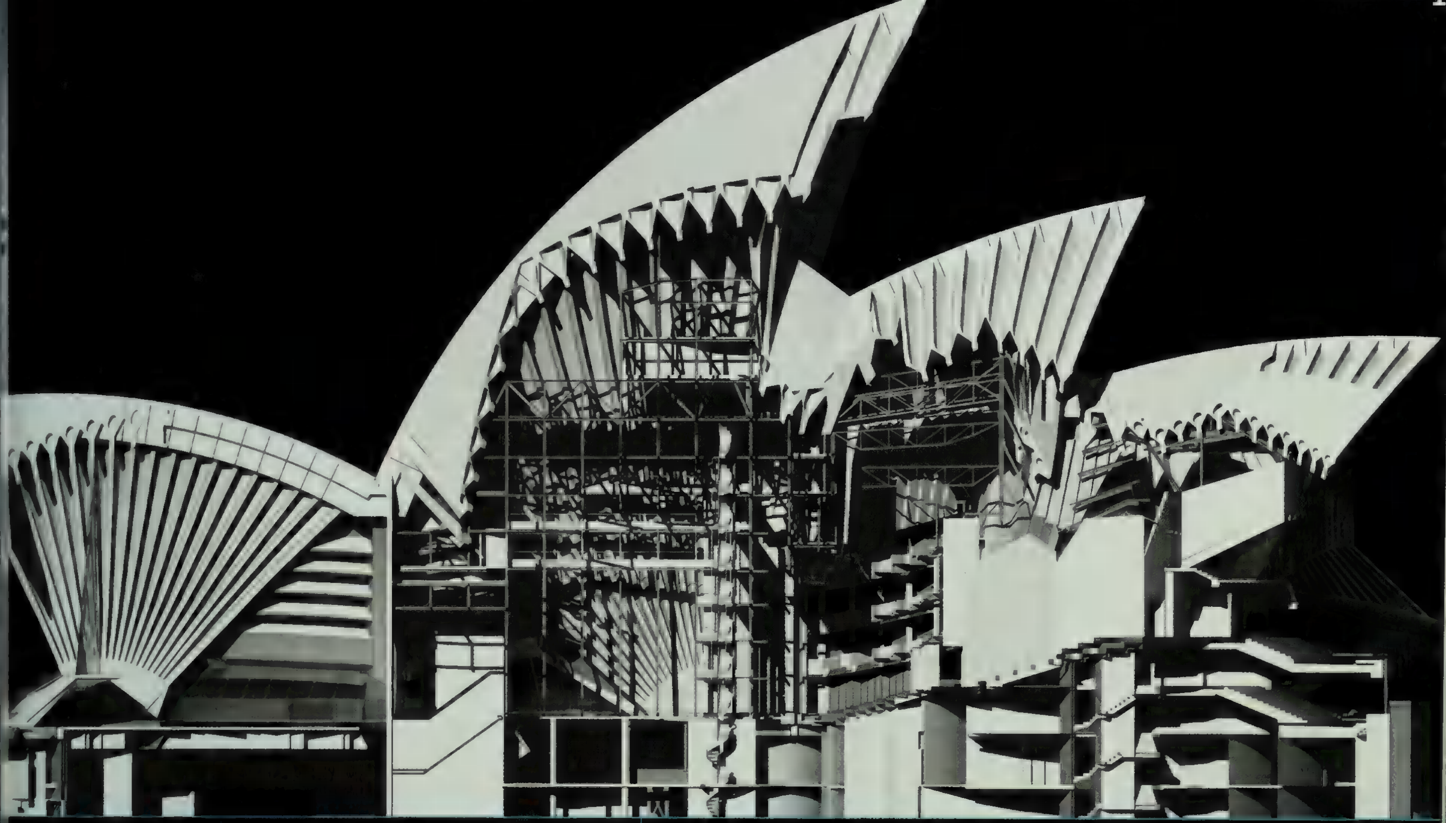
Midcentury masters

Those Modern structural design engineers engaged the next generation, who by the 1950s and 1960s inserted themselves into larger consultancy roles for new building typologies, such as massive skyscraper projects. For example, Frederick Severud, with architect Matthew Nowicki, made possible the design of the suspended roof of the Raleigh Arena in North Carolina (1952). With its unique saddle shape, it fast became a pilgrimage stop for engineers Frank Newby, Ted Happold, and Frei Otto on their first visits to the U.S. in the early 1950s. Severud's ability to free structure to express the potentials of nonlinear space, breaking away from the rigid grid, also inspired Eero Saarinen's concrete shell for Ingalls Rink in New Haven (1956–59).

Ove Arup was also outspoken in his dedication to structure as a force for design, articulating in his landmark 1970 "Key Speech" concepts of "total design" and "total architecture." For Arup, these two points described a necessary and productive synthesis in the collaboration between architects and engineers, between design and construction. Although he died in 1989, his influence has been broad, not only through the 9,000 employees who constitute his present firm, but in the spawning of other firms, such as the late Ted Happold's Buro Happold, the late Peter Rice's RFR, Jane Wernick's firm, Chris Wise's Expedition Engineering, and Guy Nordenson, who started in Arup's New York office and then founded his own practice. While Arup has had lasting influence for the development of the multidisciplinary practice—structural, mechanical, electrical, plumbing, acoustics, lighting, and so on—Arup, the man, was never alone in his pursuit of structural innovation. The work of Jack Zunz on Jørn Utzon's Sydney Opera House in Australia (1957–73), which expanded the potential of shell structures, and Rice's work on the "high-tech" Centre Pompidou in Paris (1971–76), with Richard Rogers and Renzo Piano, both represent signatures for the firm at the time, as more individual engineers developed collaborative relationships with specific architects. Since 2005, engineers at Arup have been completing a precise 3D digital model of the Sydney Opera House for future construction projects and analysis.

In Germany, Frei Otto's collaborative investigations of lightweight structures took shape with the unique topographic roof surface of the Munich Olympic Park (1972), designed by Behnisch Architekten (then called Benisch + Partner), with engineers Leonhardt, Andrä and

Nina Rappaport is a writer, curator, and educator, as well as publications director at the Yale School of Architecture. Her forthcoming book, Support and Resist: Structural Engineers and Design Innovation, *is due this fall from The Monacelli Press.*



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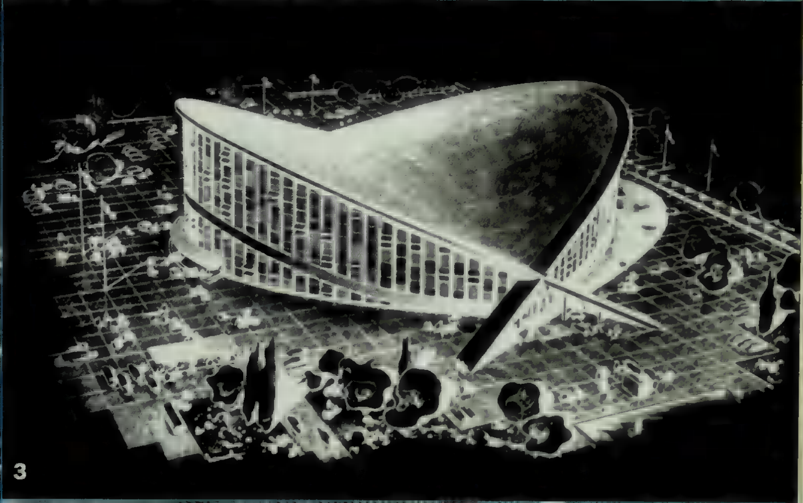

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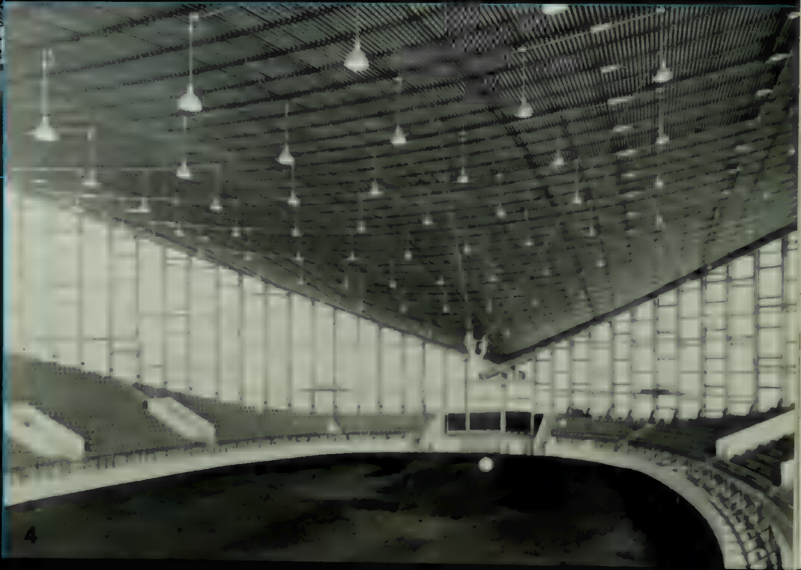

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1. Building Information Model from 2007 of the Sydney Opera House (1957–73), *Jorn Utzon, with Ove Arup.*
2. Structural study model for the Munich Olympic Stadium (1972), *Behnisch Architekten, with Frei Otto.*
3, 4. Dorton (Raleigh) Arena (1952), North Carolina, *Matthew Nowicki, with Frederick Severud.*

EDITOR'S NOTE: Modern consulting engineers and their ideas have spawned countless new practices throughout the world, resulting in some of the most inspiring projects of our time. We admit we have left out a few greats in our overview, but we see this as only a beginning to understanding the increasingly interconnected world of architectural engineering.

London

JANE WERNICK
Jane Wernick and [illegible], structural
[illegible]
(Zaha Hadid Architects)

TIM MACFARLANE
[illegible] Macfarlane, [illegible]
Apple store's glass staircases
(Bohlin Cywinski Jackson)

OVE ARUP (D)
Arup, structural
[illegible] Penguin Pool
(Berthold Lubetkin)

EDMOND HAPPOLD (D)
Buro Happold, structural
[illegible], Munich

IAN LIDDELL
Buro Happold, structural
Millennium Dome, London
(Richard Rogers Partnership)

JACK ZUNZ
[illegible]
Sydney Opera House
(Jørn Utzon)

PATRICK BELLEW
Atelier 10, environmental
Singapore Arts Centre,
(Michael Wilford Associates)

ANTHONY HUNT
Anthony Hunt and Associates, structur
Eden Project, [illegible]
([illegible] Architects)

GUY BATTLE
Battle McCarthy, [illegible]
[illegible], Madrid
([illegible] Fox)

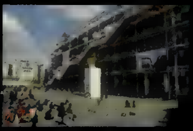
CECIL BALMOND
Arup, structural
CCTV Tower, Beijing
(Office for Metropolitan Architecture)

NEIL THOMAS
Atelier 1, structural
Singapore Arts Centre
(Michael Wilford Associates)

HANIF KARA
Adams Kara Taylor, structural
Phæno Science Center, Germa
(Zaha Hadid Architects)

CHRIS McCARTHY
Battle McCarthy, [illegible]
[illegible] and Castle [illegible], London
([illegible])

PETER RICE (D)
[illegible]
Centre Georges Pompidou, Paris
(Renzo Piano and Richard Rogers)



CENTRE POMPIDOU

MARK WHITBY
Whitby Bird, structural
The Circle, London
(CZWG Architects)

CHRIS WISE
Expedition Engineering, structural
Las Arenas Bullring, Barcelona
([illegible] Stirk Harbour + Partners)

Europe

PIER LUIGI NERVI (D)
([illegible]), architect, [illegible]
[illegible] of St. Mary of the Assumption, San [illegible]
([illegible] Belluschi)

MATTHIAS SCHULER
[illegible] (Germany), mechanical/environmental
Deutsche Post, Bonn
(Murphy/Jahn Architects)

EUGENE FREYSSINET (D)
[illegible], structural
Airship han[illegible]
Innovated [illegible]

FREI OTTO
Atelier Frei Otto (Germany), [illegible]
Munich [illegible]
(Behnisch Architekten)

MARC MIMRAM
Marc Mimram [illegible] (France), structural
Solferino Bridge, Paris

JORG SCHLAICH
Schlaich [illegible] and Partner (Germany), [illegible]
Munich [illegible] Stadium
([illegible])

WERNER SOBEK
Werner Sobek Engineering [illegible] (Germany) [illegible]
Mercedes-Benz Museum, [illegible], Germany
(UN Studio)

MICHEL VIRLOGEUX
[illegible], structural
Millau [illegible], France
[illegible]

Institute for [illegible] Structures and Conceptual [illegible], University of Stuttgart

PIERRE LARDY (D)
(Switzerland), structural
Innovated [illegible] concrete

ROBERT MAILLART (D)
(Switzerland), structural
[illegible]
Innovated [illegible] concrete [illegible]

BANGKOK AIRPORT

KLAUS BOLLINGER
[illegible] & Grohmann
BMW [illegible] and [illegible], Munich
(Coop Himmelb(l)au)

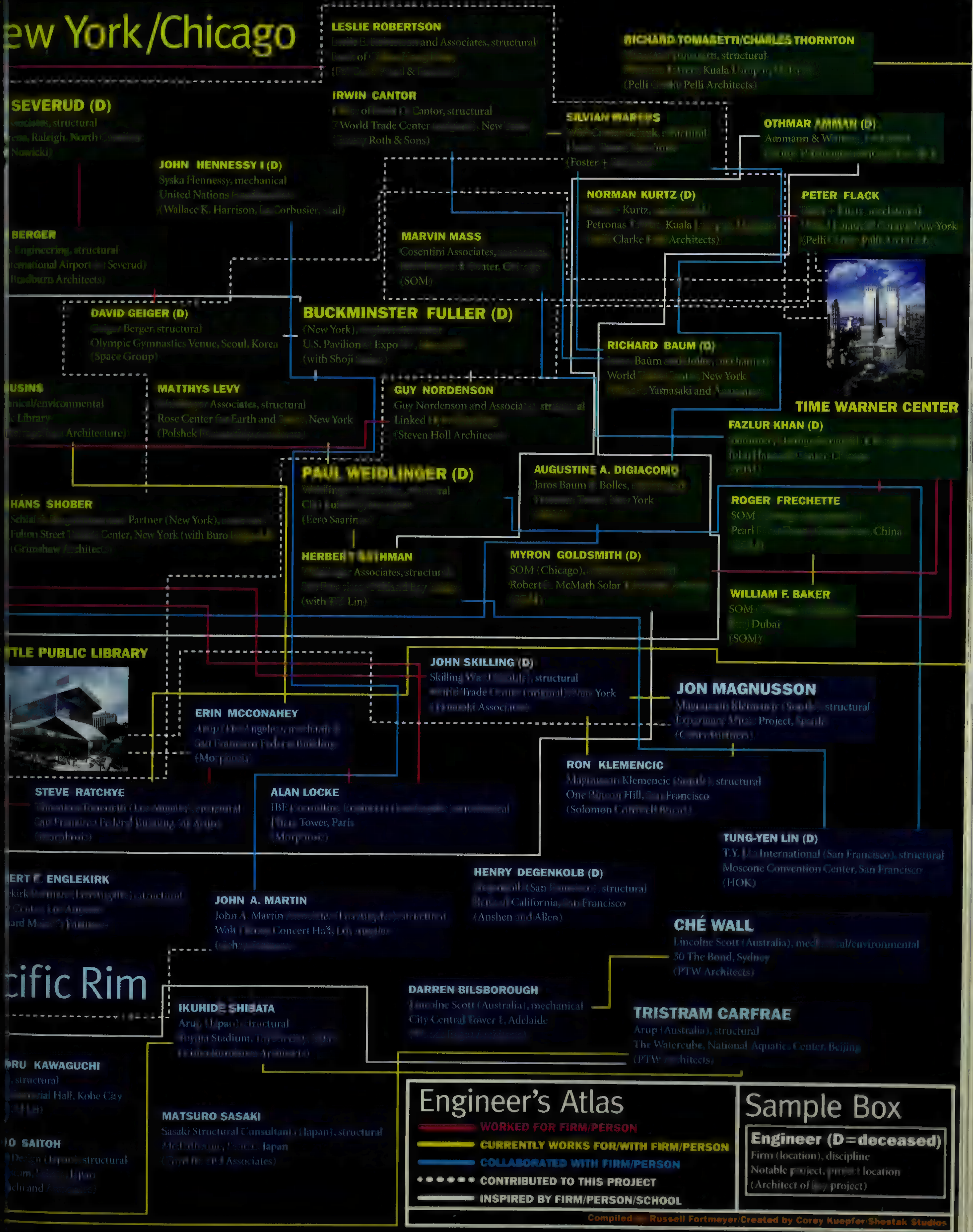
MANFRED GROHMANN
Bollinger & Grohmann (Germany), [illegible]
BMW Event and Delivery Center, Munich
([illegible])

CHRISTIAN MENN
(Switzerland), structural
[illegible] Bridge, Switzerland
Further [illegible] concrete

Swiss Federal Institut
Technology, Zurich

HEINZ ISLER
(Switzerland), structural
[illegible], Switzerland

JÜRG CONZETT
Conzett [illegible] (Switzerland), [illegible]
[illegible] Footbridge, [illegible], Switzerland



ew York/Chicago

LESLIE ROBERTSON
[illegible] and Associates, structural
Bank of [illegible]
([illegible] & [illegible])

IRWIN CANTOR
[illegible] of [illegible] Cantor, structural
7 World Trade Center ([illegible]), New [illegible]
([illegible] Roth & Sons)

RICHARD TOMASETTI/CHARLES THORNTON
[illegible], structural
[illegible] Towers, Kuala Lumpur, [illegible]
(Pelli [illegible] Pelli Architects)

SEVERUD (D)
[illegible], structural
[illegible], Raleigh, North [illegible]
[illegible] Nowicki)

JOHN HENNESSY I (D)
Syska Hennessy, mechanical
United Nations [illegible]
(Wallace K. Harrison, Le Corbusier, [illegible])

SILVIAN MARCUS
[illegible], structural
[illegible]
(Foster + [illegible])

OTHMAR AMMAN (D)
Ammann & W[illegible]
[illegible]

NORMAN KURTZ (D)
[illegible] + Kurtz, [illegible]
Petronas [illegible], Kuala [illegible]
([illegible] Clarke [illegible] Architects)

PETER FLACK
[illegible] + [illegible]
[illegible] New York
(Pelli [illegible])

BERGER
[illegible] Engineering, structural
[illegible]ernational Airport ([illegible] Severud)
([illegible] Architects)

MARVIN MASS
Cosentini Associates, [illegible]
[illegible] Center, Chicago
(SOM)

DAVID GEIGER (D)
Geiger Berger, structural
Olympic Gymnastics Venue, Seoul, Korea
(Space Group)

BUCKMINSTER FULLER (D)
(New York), [illegible]
U.S. Pavilion at Expo [illegible], [illegible]
(with Shoji [illegible])

RICHARD BAUM (D)
[illegible] Baum [illegible]
World [illegible], New York
([illegible] Yamasaki and [illegible])

TIME WARNER CENTER

USINS
[illegible]nical/environmental
[illegible] Library
([illegible] Architecture)

MATTHYS LEVY
[illegible] Associates, structural
Rose Center for Earth and [illegible], New York
(Polshek [illegible])

GUY NORDENSON
Guy Nordenson and Associates, structural
Linked [illegible]
(Steven Holl Architects)

FAZLUR KHAN (D)
[illegible]
John Hancock Center, Chicago
(SOM)

PAUL WEIDLINGER (D)
Weidlinger [illegible], structural
CBS Building, [illegible]
(Eero Saarinen)

AUGUSTINE A. DIGIACOMO
Jaros Baum & Bolles, [illegible]
[illegible], New York
([illegible])

HANS SHOBER
Schlai[illegible] Partner (New York), [illegible]
Fulton Street [illegible] Center, New York (with Buro [illegible])
(Grimshaw Architects)

ROGER FRECHETTE
SOM [illegible]
Pearl [illegible], China
(SOM)

HERBERT ROTHMAN
[illegible] Associates, structural
San Francisco-Oakland Bay [illegible]
(with T.Y. Lin)

MYRON GOLDSMITH (D)
SOM (Chicago), [illegible]
Robert R. McMath Solar [illegible]
([illegible])

WILLIAM F. BAKER
SOM ([illegible]), [illegible]
[illegible] Dubai
(SOM)

TLE PUBLIC LIBRARY

JOHN SKILLING (D)
Skilling [illegible], structural
World Trade Center (original), New York
([illegible] Associates)

JON MAGNUSSON
Magnusson Klemencic (Seattle), structural
Experience Music Project, Seattle
([illegible])

ERIN MCCONAHEY
Arup (Los Angeles), [illegible]
San Francisco Federal Building
(Morphosis)

RON KLEMENCIC
Magnusson Klemencic (Seattle), structural
One [illegible] Hill, San Francisco
(Solomon [illegible])

STEVE RATCHYE
[illegible] (Los Angeles), structural
San Francisco Federal Building, San [illegible]
([illegible])

ALAN LOCKE
IBE [illegible], [illegible]
[illegible] Tower, Paris
(Morphosis)

TUNG-YEN LIN (D)
T.Y. Lin International (San Francisco), structural
Moscone Convention Center, San Francisco
(HOK)

ERT E. ENGLEKIRK
[illegible]kirk [illegible] (Los Angeles), structural
[illegible] Center, Los Angeles
[illegible]ard M[illegible]

HENRY DEGENKOLB (D)
[illegible] (San Francisco), structural
[illegible] California, San Francisco
(Anshen and Allen)

JOHN A. MARTIN
John A. Martin [illegible] (Los Angeles), structural
Walt Disney Concert Hall, Los Angeles
(Gehry [illegible])

CHÉ WALL
Lincolne Scott (Australia), mechanical/environmental
30 The Bond, Sydney
(PTW Architects)

cific Rim

DARREN BILSBOROUGH
Lincolne Scott (Australia), mechanical
City Central Tower I, Adelaide
([illegible])

IKUHIDE SHIBATA
Arup (Japan), structural
Toyota Stadium, [illegible], Japan
([illegible])

TRISTRAM CARFRAE
Arup (Australia), structural
The Watercube, National Aquatics Center, Beijing
(PTW Architects)

RU KAWAGUCHI
[illegible], structural
[illegible]rial Hall, Kobe City
([illegible])

MATSURO SASAKI
Sasaki Structural Consultants (Japan), structural
[illegible], Japan
([illegible] Associates)

O SAITOH
[illegible] Design (Japan), structural
[illegible], Japan
[illegible]chi and [illegible]

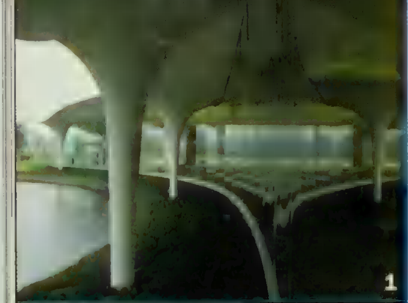
Engineer's Atlas

- 🟥 WORKED FOR FIRM/PERSON
- 🟨 CURRENTLY WORKS FOR/WITH FIRM/PERSON
- 🟦 COLLABORATED WITH FIRM/PERSON
- ● ● ● ● ● ● CONTRIBUTED TO THIS PROJECT
- ⬜ INSPIRED BY FIRM/PERSON/SCHOOL

Sample Box

Engineer (D=deceased)
Firm (location), discipline
Notable project, project location
(Architect of key project)

Compiled by Russell Fortmeyer/Created by Corey Kuepfer/Shostak Studios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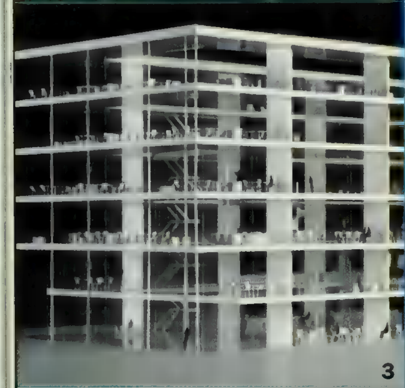
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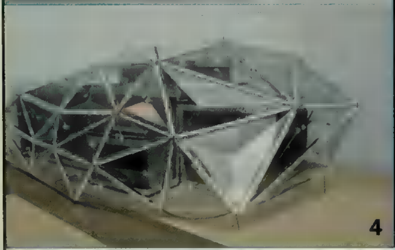
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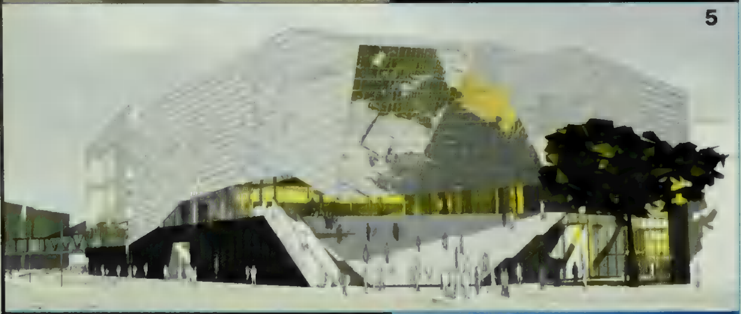
1. Crematorium (2006), *Toyo Ito and Associates, with Matsuro Sasaki.*
2. Ministructure No. 16 (2007), *Michael Maltzan, with Guy Nordenson.*
3. Novartis (2007), *SANAA, with Bollinger & Grohmann.*
4. Mariinsky Theatre II (2008), *Dominique Perrault, with Bollinger & Grohmann.*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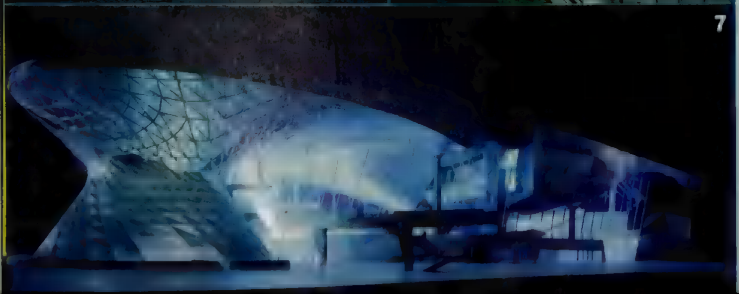
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5. Shires Development (2007), *Foreign Office Architects, with Adams Kara Taylor.*
6. Innsbruck Ski Jump (2002), *Zaha Hadid, with Jane Wernick for Arup.*
7. BMW Event Center (2007), *Coop Himmelb(l)au, with Bollinger & Grohmann.*

Partners. Engineers Jörg Schlaich and Rudolph Bergermann, who later formed their own influential practice, were also part of the team. The project epitomizes Otto's ideas from his tensile structures of the 1960s, which used the principles of economy in large-span, lightweight membranes. This experimentation relied on Otto's position as the founder of the Lightweight Structures Institute at the University of Stuttgart, where he could use numerous modeling techniques—such as soap film structures, hanging chain models, and mechanical models—in which the radically simple processes resulted in form. At the institute, the baton was passed to Jörg Schlaich, who then taught Werner Sobek, the current director of the renamed Institute for Lightweight Structures and Conceptual Design. Otto's embrace of flexible and lightweight structures forms a contrast to monumental and weighty architecture.

Enabling collaborations

Today, shared Building Information Models (BIM), rather than just physical models, as with Otto's early projects, allow for feedback and integration between all the building professions, including that of the construction team. Adams Kara Taylor (AKT), a London-based structural and civil engineering firm of 40 people, will engage an architect's ideas for a project design, but, as engineer Hanif Kara says, they "do not pretend to be the architect." Key to the firm is teamwork and a constant dialogue with the architect. An in-house mathematics think tank with computational specialists assists teams, and it is common to see five engineers from five countries hunched over one computer as they jointly solve problems. AKT's nonhierarchical studio encourages creative thinking and innovation, but not at the cost of technical competence, achieving what Kara calls "great engineering rather than bad architecture." For its work on the Peckham Library in London (2000), with Alsop & Stormer Architects, the concrete-filled steel columns angle to support a cantilevered upper volume. Appearing like an upside down L-shaped volume, the building's structure freed Alsop from traditional constraints, opening the library's base to allow for public space. Kara, who worked for Anthony Hunt and also teaches at the Architectural Association in London, engineered Zaha Hadid's Phaeno Science Center in Germany (2005), where structural redundancy was eliminated so that the walls and concrete slab could combine as a continuous shell to achieve the fluid space the architect desired. Currently, Kara is collaborating on the design with Foreign Office Architects (FOA) of the John Lewis department store in Leicester, England (2007), that will also include retail and a cinema. AKT's proposed structural design enables FOA to foreground an intricate lacy glass facade by engineering large spans for an atrium, an auditorium, and loading dock areas, in addition to glass walkways through the atrium.

Before leaving to form her own firm, at Arup Jane Wernick engineered Hadid's curvilinear concrete Ski Jump in Bergisel in Innsbruck (2002) and the competition phase of Angelil/Graham/Pfenninger/Scholl's Portland Aerial Tram (see page 126) in Oregon. Taking into account what Peter Rice taught her when she was at Arup, to "let the architects in on their secrets," Wernick says she always explains her process at the outset of a project. Among her more notable achievements at Arup, her structural challenge for Marks Barfield Architects' London Eye ferris wheel (1999) was to design a 500-foot-high structure that moves, but would be stable and strong. Not surprisingly, she found the bicycle wheel, as a tensegrity structure, to be the most economical form. She resolved the structure with landside pylons supporting the wheel at the hub, with the spindle cantilevering out to allow the wheel to be suspended over the Thames River. Although unusual for historic London, the structural spectacle of the Eye has become one of the city's most exquisite examples of its engineering eminence.

Many times, the collaboration between architect and engineer results in buildings where intensified structural patterns emerge from a mathematical or nature-derived basis that is enabled by digital tools to become a kind of "deep decoration." Tristram Carfrae, of Arup's Melbourne office, employed the concept of bubble structures for the Watercube National Acquatics Center for the 2008 Beijing Olympics, designed with PTW Architects of Australia. The center's five pools are enclosed in a structure filled in with ETFE foil cushions—similar to those used at Grimshaw Architects' Eden Project in England (2001)—that both physically and literally represents a swimming pool. Rather than adopt Frei Otto's soap bubble investigations from the Munich stadium, Arup explored the connectivity of cellular arrays to combine the surface pattern with the internal structure of a ductile space frame that supports the long-span roof structure. The varied ETFE hexagonal elements resolve both the environmental and structural design in a nonlinear, unified form.

Material focus

Many engineers are interested in the structure of materials, as well as material-as-structure. The Modernist fascination with glass, in its duality of fragility and strength, in addition to its varying qualities of transparency and translucency, has played a notable part in many engineers' oeuvre. This can be found in the early work of Peter Rice's bracketed glass wall systems for the Grand Serres of the Science and Technology Museum in Paris's Parc de la Villette, with architects Adrien Fainsilber & Associés (1986), to structural glass systems of such contemporary practices as Dewhurst Macfarlane, Schlaich Bergermann und Partner, and Werner Sobek. In June, Rice's Paris-based firm, RFR, completed the structure for a 460-foot-long toroidal transparent volume to expand the Strasbourg TGV train station, designed by the architect Jean-Marie Duthilleul for the French National Railways. Relying on a slender prestressed-steel structure, the use of cold-formed curved and laminated glass minimizes its presence at the historic station. Working with Seele glass manufacturers, and incorporating solar gain analysis from Stuttgart-based climate engineers Transsolar, the project combines design, structure, and climate engineering in a truly holistic way while resulting in a bubble form at the station. Bollinger & Grohmann, working with Mutsuro Sasaki and Transsolar, devised a transparent sustainable office building in a Minimalist structure for SANAA's Novartis project in Basel, Switzerland (2007). The extremely thin reinforced-concrete floor slabs supported by structural walls achieved the desired open floor spans, as well as transparency through the rectilinear building. With design assistance from the New York–based facade consultants Front, the translucent building appears as a thinly veiled glass box.

New York–based engineer Guy Nordenson, working with Los Angeles architect Michael Maltzan, designed the Ministructure No. 16 in Jinhua City, China, a 1,300-square-foot pavilion in a historic garden. Beginning the design with a concrete structure, the team switched to steel because of the high water table. A hybrid Veirendeel steel structure, accompanied by smaller ladder trusses, resulted in a double-perforated facade that creates an unexpected moiré pattern on the building's skin.

Algorithms and patterns of structure

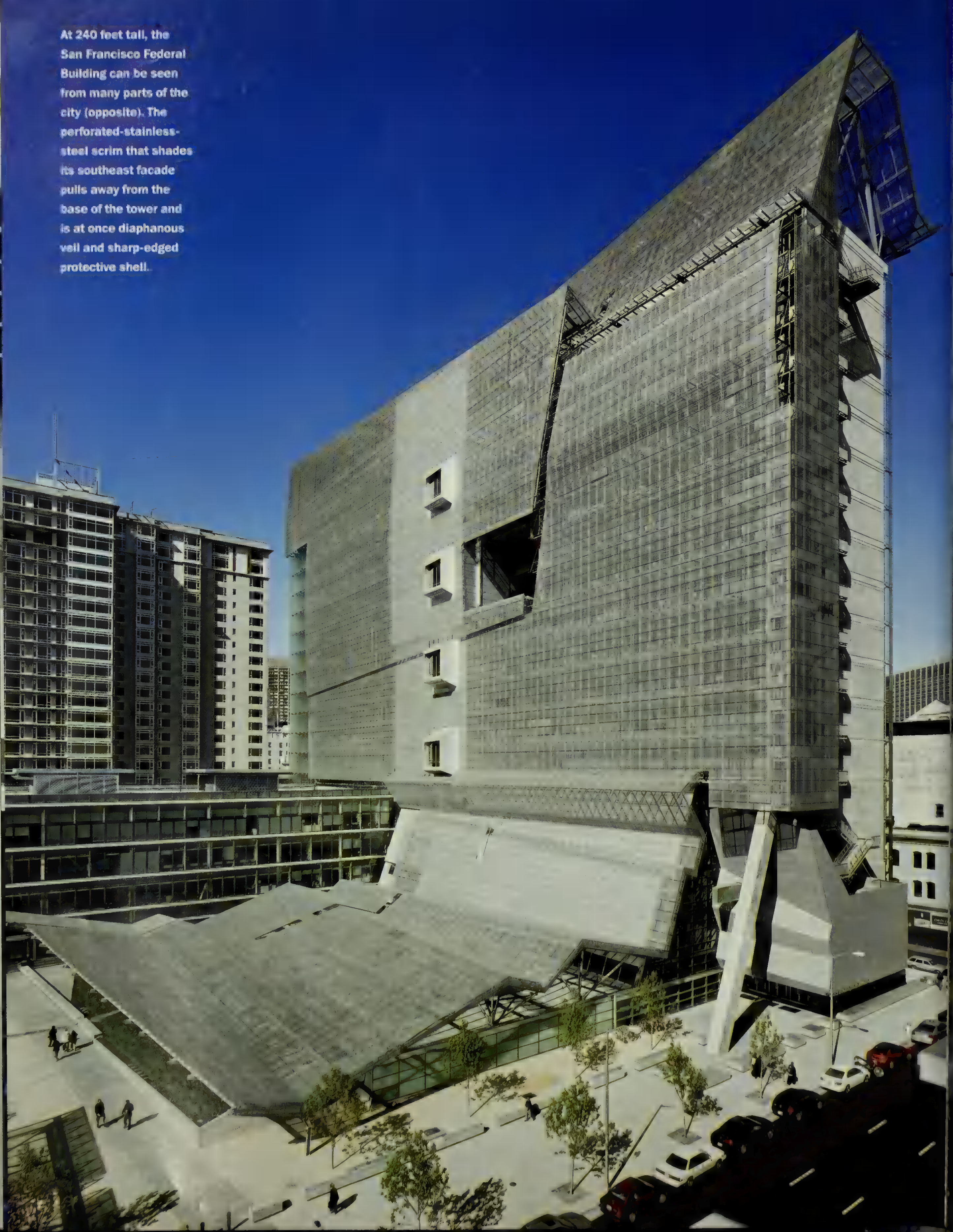
Structural engineers have been doing analysis in 3D for decades, but now they share those models with architects as digital versions of construction drawings. These models now increasingly rely on complex computer-code-based geometrical relationships that require engineers to be as much programmers as designers. Much of this work has resulted from firms designing their own software, such as Happold's Tensyl for tensile structures or Bollinger & Grohmann's program for trusses, though Autodesk's Revit and Bentley's Generative Components have revolutionized design for many engineers.

Algorithmic design processes resulted in the structural maneuvers of Bollinger & Grohmann's proposed tessilations for Dominique Perrault's Mariinsky Theatre II in St. Petersburg, Russia (2008). The Mariinsky's structure is defined by a system of connected steel pyramids, like an asymmetric geodesic dome, filled in with cross ribs that radiate out to support a metal-mesh infill. The shell wrapping the theaters appears like a geode, where structure and skin are combined into one system, similar in theory to the deep decoration found on Arup's Watercube. Cecil Balmond, one of Arup's directors, works experimentally with algorithms with architects such as Rem Koolhaas, Daniel Libeskind, and Toyo Ito. Balmond has written a book, *Informal* (2002), and his projects are currently on view in *The Frontiers of Architecture I* exhibition at the Louisiana Museum of Contemporary Art, in Denmark, through October. The 2002 Serpentine Pavilion in London expresses many of his concepts most explicitly. Designed with Toyo Ito, the structure was based on twisted squares arranged in circular patterns, connected with their primary lines of force. The overall patterning of the shell, in crossing lines and planes, makes the skin and structure one—more similar in concept to a traditional load-bearing wall than to systems of separate structure and infill. The pavilion is a physical manifestation of an algorithm: Pattern and structure are integrated and become a form. As Balmond says, "The design started with a simple line that was repeated, releasing architecture from structure, rather than trapping architecture through the structure." Diagonally gridded exterior-structural-skin systems have also become emblematic of his use of structure as pattern, as is the case for the diagrid structural skin of OMA's CCTV Tower, under construction in Beijing.

Nonlinear shaping of structure is dominant in Mutsuro Sasaki's work in strong collaborations with Toyo Ito and Arata Isozaki, as he believes there is a creative process involved in developing hypotheses regarding a structure's shape, system, materials, and dimensions. Focusing on form-finding and shape design in curvilinear and organic forms, Sasaki bases designs on principles of self-organization in nature. Using his 3D Extended Evolutionary Structure Optimization (ESO) method, he defines his forms within a collaborative digital model to result in optimized and rational structures. For Ito's Crematorium, in Kakamigahara Gifu, Japan (2006), the curvilinear reinforced-concrete roof shell, only 7.8 inches thick, was evaluated using Sensitivity Analysis, a systematized method for analyzing curved surfaces to determine an efficient structural shape. As he describes in his 2006 book, *Flux Structure*, "By means of the repetitive nonlinear analysis procedure it becomes possible to organically comprehend the evolution of structural form in the overall structure from the relationships between its shape and mechanical behavior."

These perspectives in turn shape the future of complex space, as well as suggest the realization of new paradigms for collaboration between design, structure, and environment. The full integration of structural engineering into the process of architecture does not guarantee good architecture or revolutionary space and forms, but enables their potential to exist. Now more than ever, engineers are embracing the natural world and poetically exploiting its logic to realize architecture's possibilities. As Ove Arup said in his "Key Speech," the aims of his firm are not "grasped arbitrarily out of the sky or willfully imposed, they are natural and obvious." ■

At 240 feet tall, the San Francisco Federal Building can be seen from many parts of the city (opposite). The perforated-stainless-steel scrim that shades its southeast facade pulls away from the base of the tower and is at once diaphanous veil and sharp-edged protective shell.



Morphosis and Arup engineers create dynamic form that follows function for the U.S. FEDERAL BUILDING in San Francisco

By Joann Gonchar, AIA

The southeast facade of the U.S. Federal Building in San Francisco is covered with a perforated-stainless-steel scrim that seems at once to be a diaphanous veil and a sharp-edged protective shell. And the dual nature of this 18-story office tower seems just right for its rapidly changing but still gritty environs, where pawn shops sit cheek by jowl with luxury condos. Completed in March, the 240-foot-tall tower dominates the mostly low-rise South of Market skyline and is reportedly snarling traffic on nearby Interstate 80 as drivers slow down to take a look. But its height and gutsy exterior are not the only reasons the Federal Building is getting attention. It also has a set of ambitious environmental goals.

The designers and the owner, the General Services Administration (GSA), say that the tower, which relies on natural ventilation to cool its upper 13 floors, will consume 33 percent less power than an office building designed to comply with California's stringent energy code, Title 24. The majority of the work spaces are largely illuminated by daylight, a strategy that is expected to reduce energy use associated with lighting by about 26 percent over a standard office building. In addition, replacement of half of he portland cement in the exposed-reinforced-concrete structure with blast furnace slag—a by-product of steelmaking—prevented release of approximately 5,000 tons of carbon dioxide into the atmosphere.

The tower is the product of a highly collaborative design process, and its form, structure, and orientation are fully integrated to achieve these efficiency targets. "The building is defined by performance," ays Thom Mayne, FAIA, principal of Morphosis, the project's lead design rchitect. Of course, there are elements of the building that are more bout expression than function, such as its roof, where the stainless-steel crim angles up and folds over like a rakish cap. "At the top, the scrim is pure form," says Mayne. "It's a balance of poetry and pragmatics."

Mayne's "pragmatic" concerns are not limited to energy and resource conservation. The tower is the centerpiece of a 605,000-square-foot, $144 million, Morphosis-designed complex, which has a significant rban and civic agenda. In addition to the tower, it has a four-story barlike ffice annex, a freestanding café, and a day-care center. These facilities, all mechanically ventilated and steel framed, define a plaza at the corner of eventh and Mission Streets. This plaza is much more than an empty outdoor space offered as compensation for the tower's height. It provides breathing room for the Beaux-Arts James R. Browning U.S. Courthouse cross the street. It also eases public access to features of the program, such s the café, which might otherwise have been buried within the tower.

Although the day-care center is accessed through the tower lobby, enrollment is nevertheless open to neighborhood children. The architect has given this facility a strong plaza presence with the shading scrim—which pulls away from the tower near its base—unfolding to shelter the semi-submerged building like an irregularly crimped accordion.

Similarly, the tower's three-story-tall sky garden, which provides spectacular views of the city and San Francisco Bay, is open to the public. It is expressed as a huge void in the southeast facade, visible even at night, when it is illuminated by a neon installation by James Turrell. "These moves are intended to break down the distance between the community and the federal government," explains Tim Christ, Morphosis project manager.

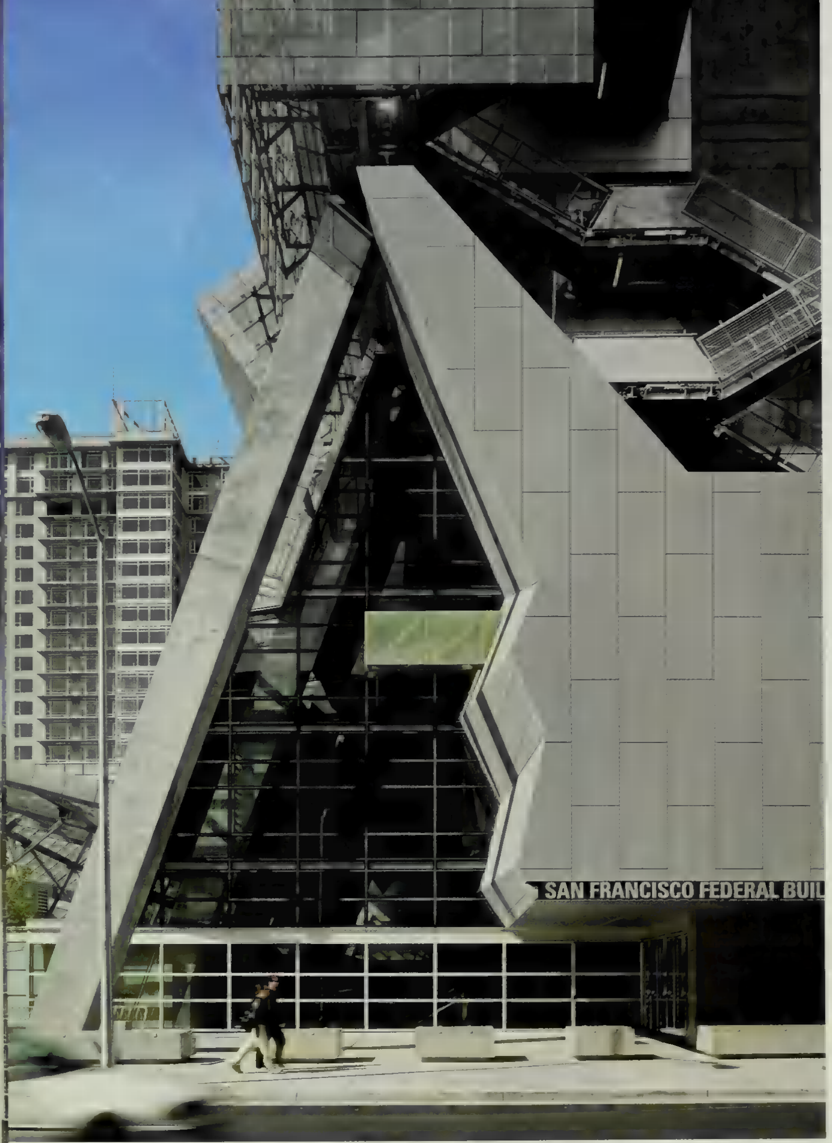
Project: *United States Federal Building, San Francisco*

Lead design architect: *Morphosis—Thom Mayne, FAIA, principal; Tim Christ, project manager; Brandon Welling, project architect*

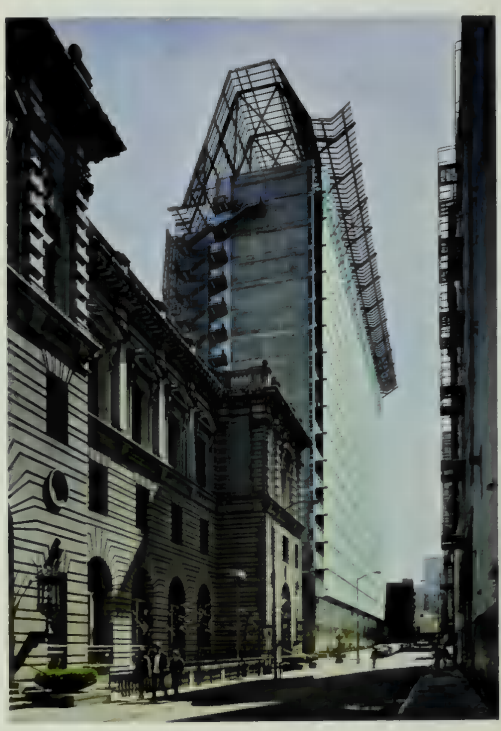
Executive architect: *SmithGroup—Carl Roehling, FAIA, project executive; Carl Christiansen, AIA, principal in charge; William Loftis, AIA, project manager; Jon Gherga, project architect*

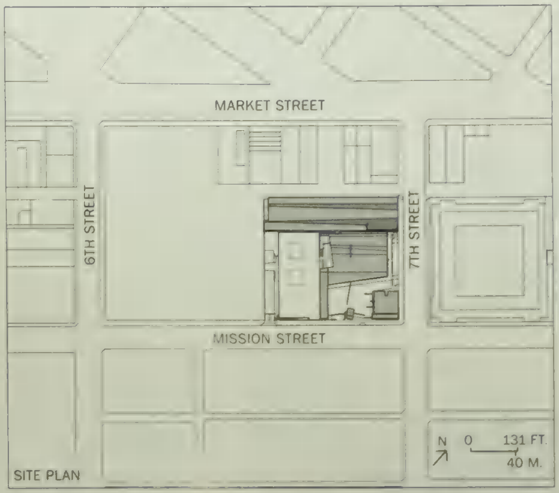
Consultants: *Arup (structural, m/e/p); Horton Lees Brogden (lighting)*

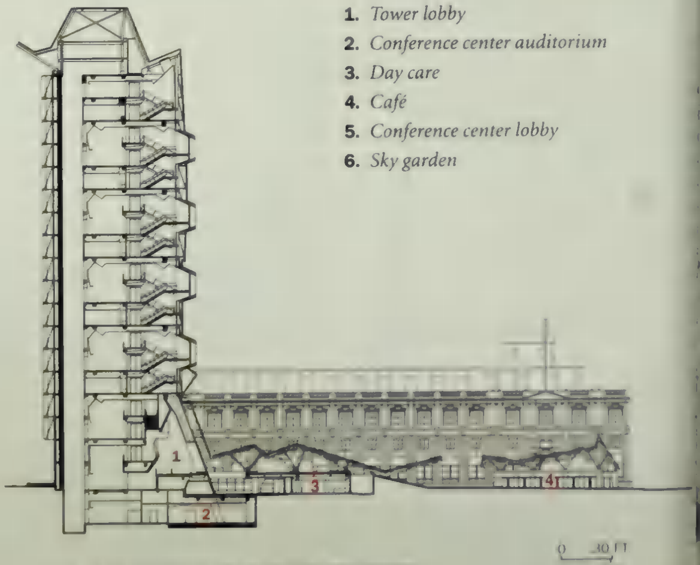
General contractor: *Dick Corporation/Morganti Group*



In addition to the tower, a four-story barlike office annex, a free-standing café, and a semisubmerged day-care center define the Federal Building's plaza (opposite) and provide breathing room for a turn-of-the-last-century courthouse across the street. In a gesture that the architect refers to as "pure form," the stainless-steel scrim that shades the southeast facade folds over the roof like a rakish cap (below). The tower's entrance is marked by its emphatic structure instead of a set of grand stairs or other monumental features often associated with government buildings.

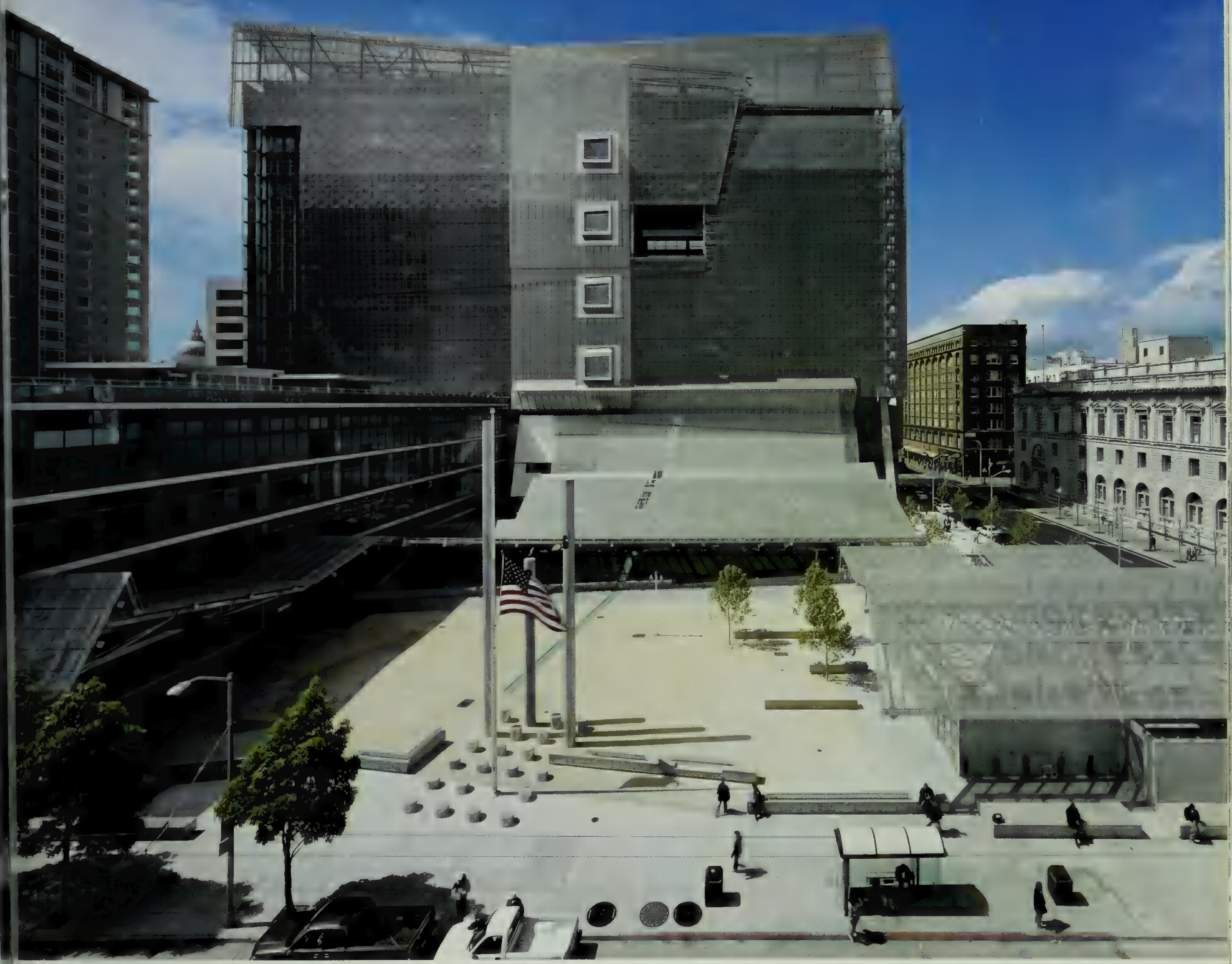


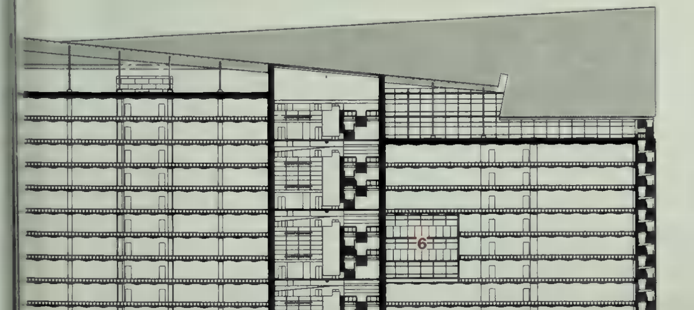




1. *Tower lobby*
2. *Conference center auditorium*
3. *Day care*
4. *Café*
5. *Conference center lobby*
6. *Sky garden*

TOWER CROSS SECTION THROUGH ELEVATOR LOBBIES

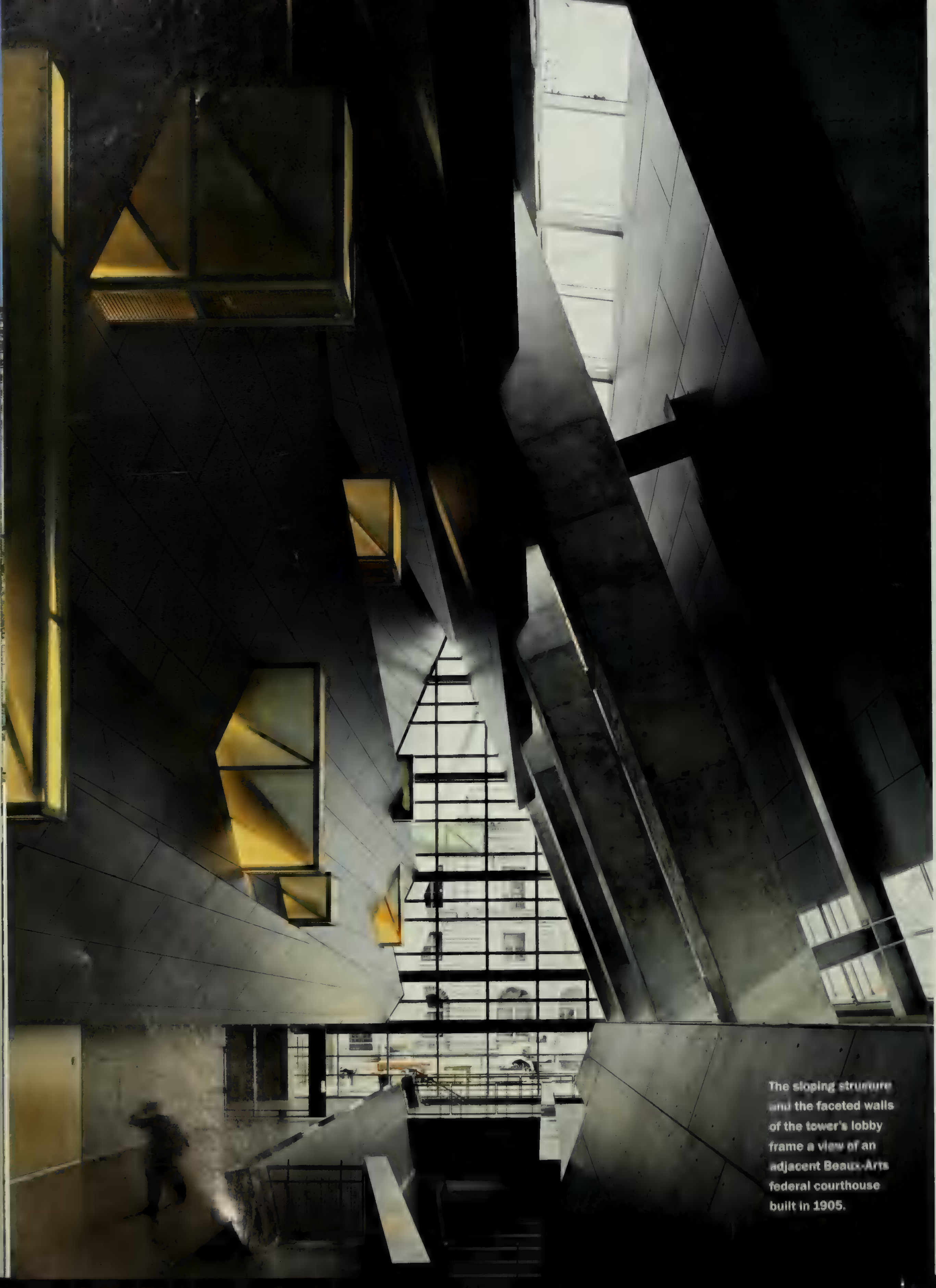




ER LONGITUDINAL SECTION THROUGH ELEVATOR LOBBIES

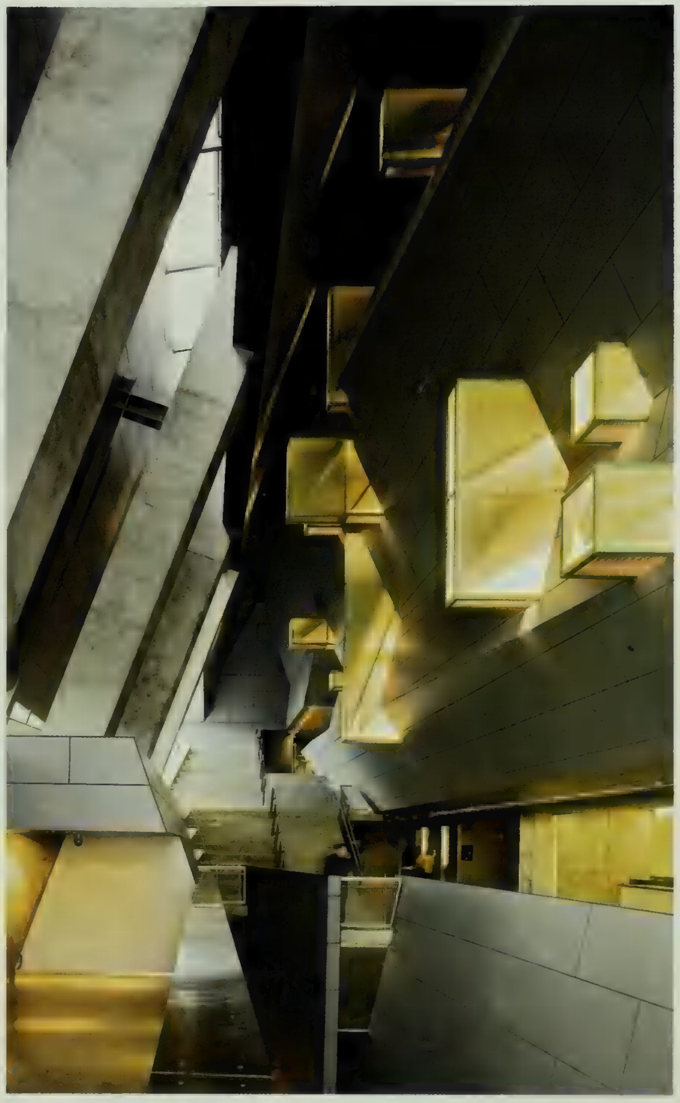
Other spaces within the building offer opportunities for lingering and chance meetings. For example, the 90-foot-tall ground floor lobby is more than a place to scurry through to reach the elevator. Here, stairs transform into informal seating, and daylight from above washes over polished concrete floors and faceted walls of reinforced-fiber-cement panels. The environment is one that Mayne describes as "raw simplicity" without being austere. On the upper floors, the three-story lobbies that are a by-product of the skip-stop elevator system, were also conceived as social spaces. They are adorned with murals by Ed Ruscha and include inviting stairs with landings that project from the facade and provide views of the city.

Many of the social and urban redevelopment goals were a component of the program since even before Congress approved funding for the project in 1989. However, the energy conservation goals did not emerge until about a decade later, when Mayne was selected as part of the GSA's Design Excellence Program. The owner organized a meeting with representatives of the 1,500 federal employees from the six tenant agencies to better understand their requirements. What emerged was a desire for work spaces with access to daylight and views and for features such as operable windows that would offer occupants individual control over their environments, says Maria Ciprazo, AIA, GSA project executive.



The sloping structure and the faceted walls of the tower's lobby frame a view of an adjacent Beaux-Arts federal courthouse built in 1905.

From the entry (below), with its angular maple-veneer walls and ceilings, visitors and tenants enter the lobby where daylight from above is supplemented by light from projecting lanterns (right).



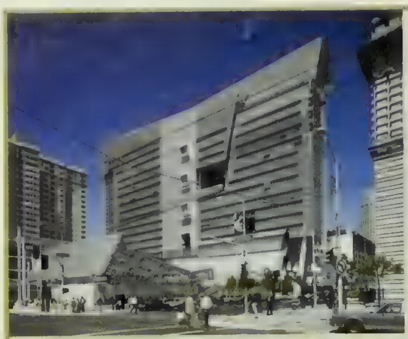
Although several years in advance of the GSA's adoption of a requirement for LEED certification, architect and client realized that the occupants' vision for the building was compatible with one that would be energy- and resource-efficient, especially if they could take advantage of San Francisco's benign climate to render air-conditioning unnecessary. "We wanted to push the building as far as possible, but we did not want to spend public funds cavalierly," says Ciprazo. So to test the feasibility of a naturally ventilated office tower, the GSA turned to scientists from Lawrence Berkeley National Laboratory to undertake weather-data analysis, wind-speed studies, and airflow modeling.

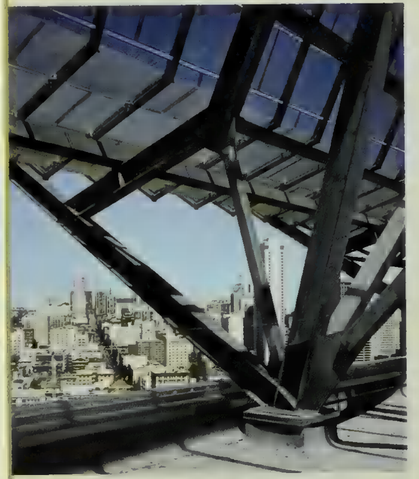
The building that evolved from this research and from early and intense collaboration with mechanical and structural engineers, lighting designers, and other consultants, was a tall and narrow structure with a 340-foot-long, and only 65-foot-wide, floor plate—slender enough to allow access to daylight and views from almost all of the work spaces. The typical floor is organized with workstations at the perimeter and meeting rooms and private offices along the spine. These glass-enclosed "cabins" are mechanically cooled, as required by code. However, their roofs are pulled away from the undersurface of the slab, so as not to obstruct the flow of air as breezes enter through openings on the tower's windward elevation and are vented through the opposite facade. The city's zoning regulations restrict the height of buildings to 120 feet in the Market Street corridor, to the northwest, ensuring that this flow of air will remain unobstructed.

The openings in the two long facades, some of which the individual occupants control, and some of which the building automation system (BAS) controls, include operable windows as well as trickle vents located near the floor. The vents let in small quantities of fresh air warmed during chilly weather by a fin-tube convector located directly above them.

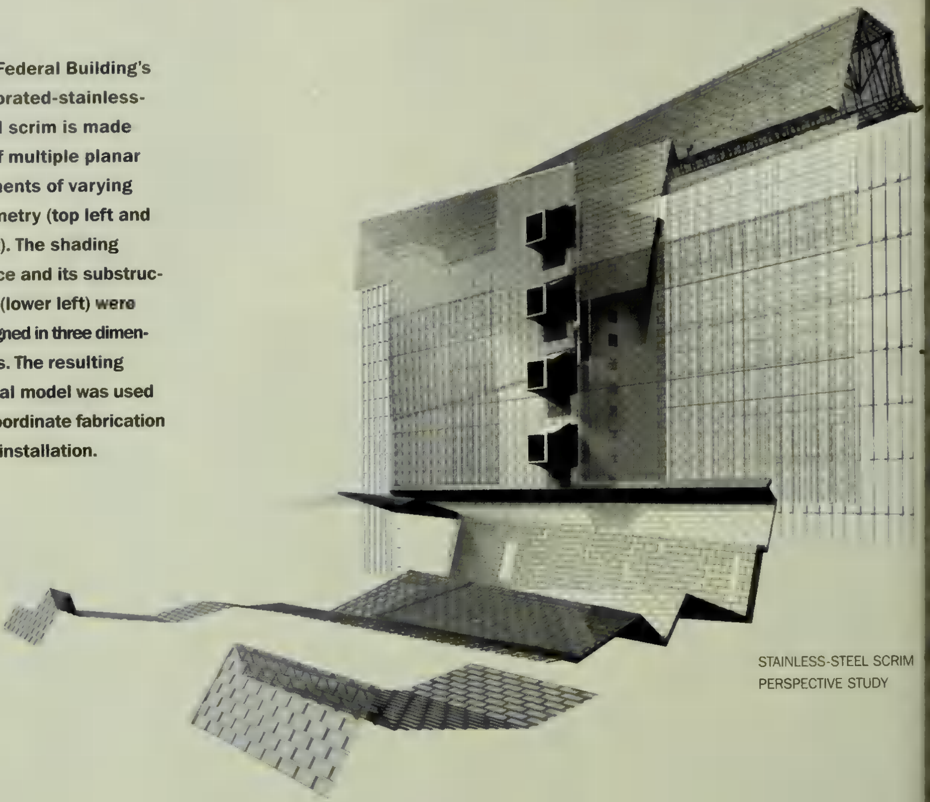
To protect the facades from excessive solar heat gain, the designers clad them in high-performance window wall. On the southeast, the perforated-stainless-steel scrim, the building's chief expressive element, does double duty as a shading device. On the northwest facade, frosted-glass fins break the sun's path and provide protection from glare.

The Federal Building's exposed-concrete structure and the thermal mass it provides are critical components of the cooling strategy. At night, when warm weather is expected the next day, the building's structure is "charged" for about 8 to 10 hours, explains Erin McConahey, Arup associate principal and project mechanical engineer. The BAS opens the facades' operable apertures and then closes them once the concrete has cooled sufficiently. Then, during the day, heat generated by occupants,



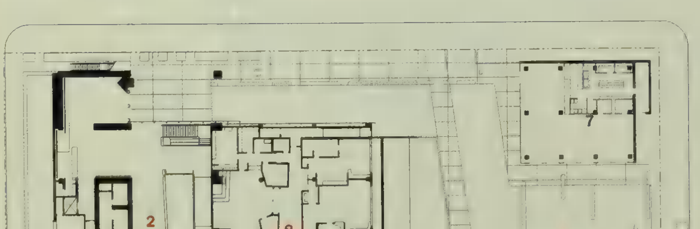


The Federal Building's perforated-stainless-steel scrim is made up of multiple planar elements of varying geometry (top left and right). The shading device and its substructure (lower left) were designed in three dimensions. The resulting digital model was used to coordinate fabrication and installation.

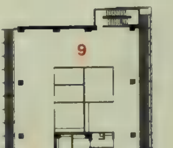


STAINLESS-STEEL SCRIM PERSPECTIVE STUDY

1. *Plaza*
2. *Tower lobby*
3. *Elevator lobby*
4. *Storage and m/e/p*
5. *Annex*
6. *Parking/lo access*
7. *Café*
8. *Day care*
9. *Office spac*

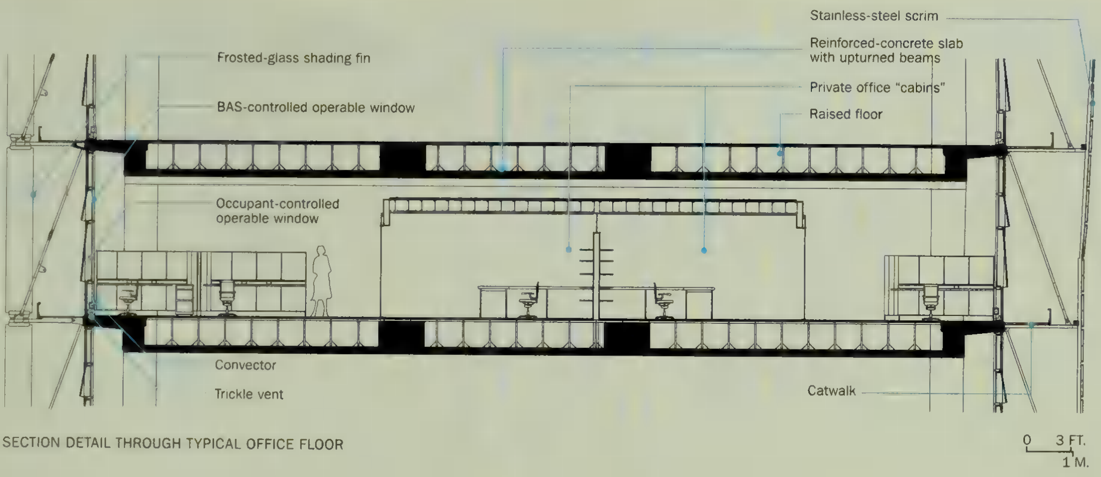


GROUND FLOOR



TOWER PLAN-LEVEL NINE

The designers protected the tower's facades from heat gain with [redacted] shading scrim on the south-east elevation and frosted-glass fins on the northwest. Some of the openings in these window walls are controlled by the occupants and some by the building automation system.

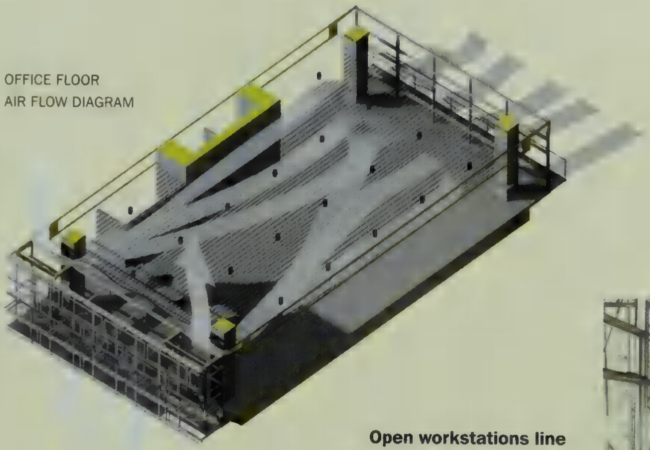

Stainless-steel scrim
Frosted-glass shading fin
Reinforced-concrete slab with upturned beams
Private office "cabins"
BAS-controlled operable window
Raised floor
Occupant-controlled operable window
Convector
Trickle vent
Catwalk
0 3 FT.
1 M.

SECTION DETAIL THROUGH TYPICAL OFFICE FLOOR

A tower shaped by performance objectives and design process

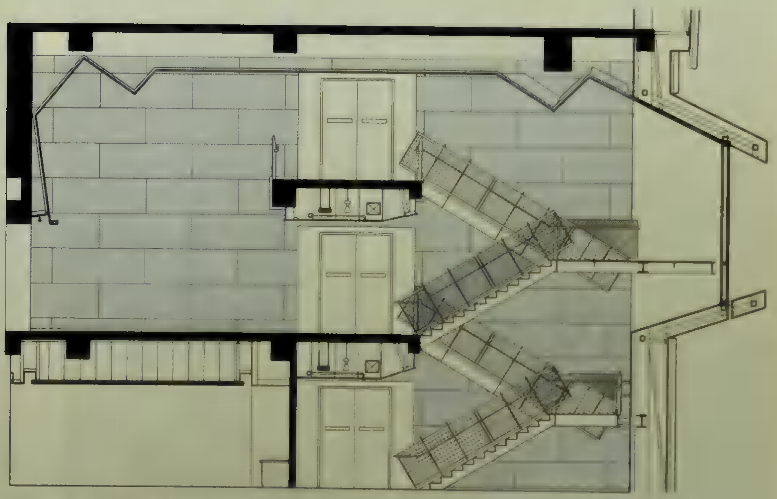
The form, structure, and orientation of the Federal Building office tower are the product of weather-data analysis, wind-speed studies, and air-flow modeling, and an integrated design process. Office floors [redacted] long and narrow to provide views and promote daylighting. The slender floor plate permits breezes to enter through openings on the tower's windward elevation and allows venting through the opposite facade. The building's exposed-concrete slabs [redacted] supported by an upturned beam system and have [redacted] wave profile in section. The configuration maximizes structural efficiency while increasing surface area, enhancing the slab's ability to absorb heat generated by people, computers, and lights.

OFFICE FLOOR
AIR FLOW DIAGRAM

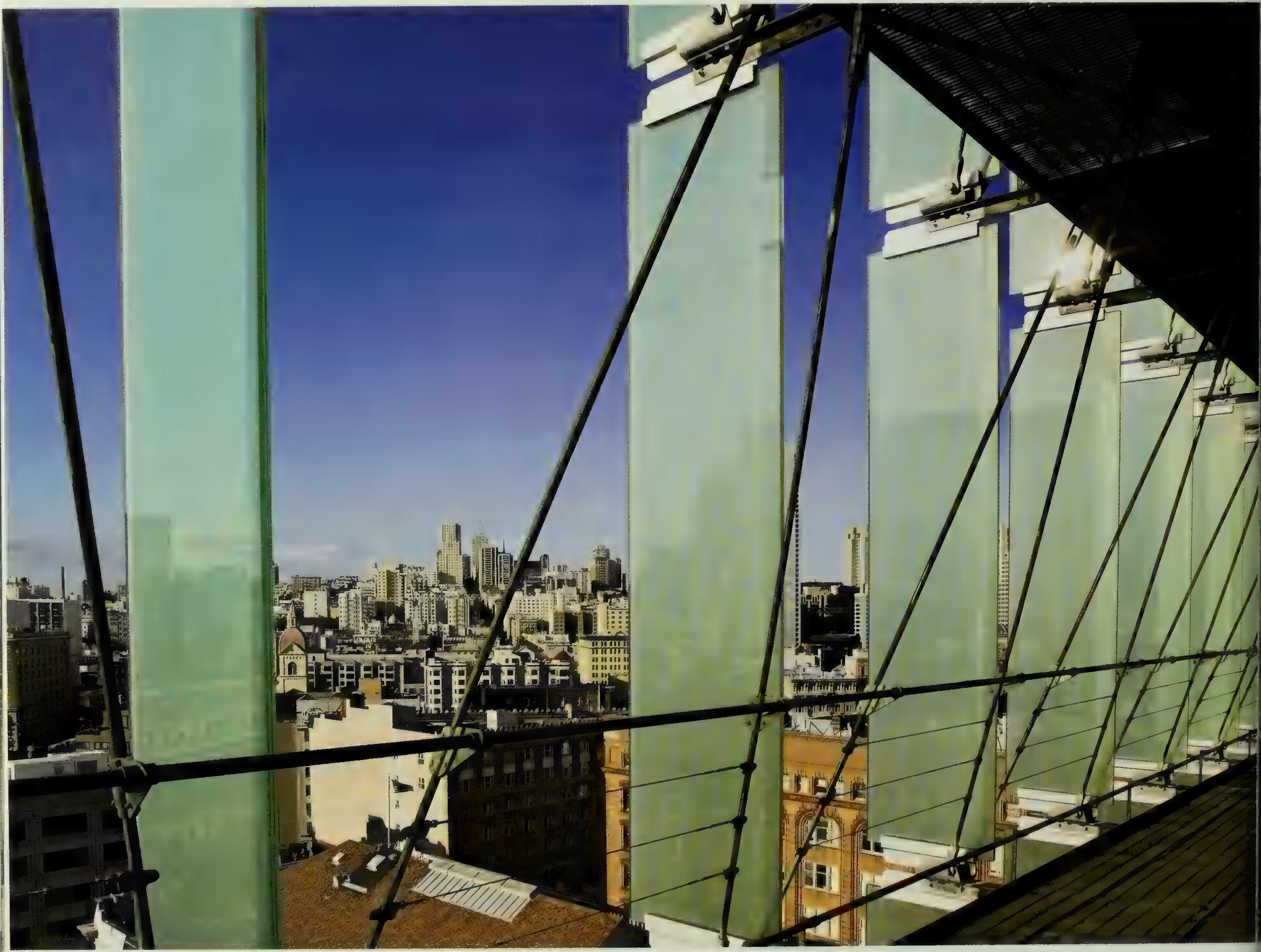


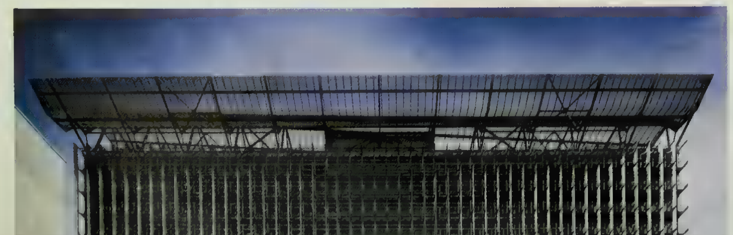
Open workstations line the perimeter of the office floors while glass-enclosed meeting rooms and office "cabins" occupy the building's spine (right).

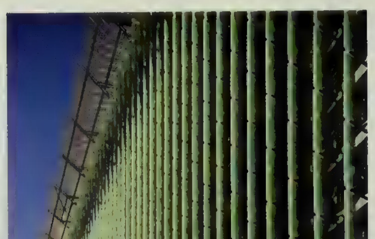
Three-story lobbies (right) are a by-product of the skip-stop elevator system first pioneered by Le Corbusier. Projecting stair landings afford views of the city (opposite, bottom).



SECTION THROUGH TYPICAL ELEVATOR LOBBY







The frosted-glass fins on the northwest elevation (this page) are separated from the window wall with a catwalk. Zoning regulations limit the height of adjacent buildings to 120 feet, ensuring that the flow of air through this facade will not be obstructed. The sky garden's suspended walkways (opposite) have fritted-glass balustrades and incorporate seating.

computers, and lights, is transferred to the slab by radiation.

The architects and engineers collaborated to find the slab configuration that would promote the lamination of air and provide maximum cooling. In most towers, floor slabs typically sit on top of perimeter beams. But such an arrangement would have blocked air flow, impeded penetration of daylight, and obstructed views. As an alternative, the design team took advantage of the client's desire for a raised floor and devised an upturned beam system. The slab suspended from these beams is ribbed with a wave profile in section, creating an efficient structure that weighs less than a conventional slab. It also provides additional concrete surface area, enhancing the slab's ability to absorb heat. In this element, the requirements of "thermal mass, architecture, structure, and daylighting all came together," says Steve Ratchye, who was Arup project structural engineer and now is an associate in the Los Angeles office Thornton Tomasetti.

Most tenants are reportedly pleased with the daylight and views, but some complain that the building is too warm after several hot days in succession. McConahey confirms that this will be the case, especially if occupants open windows too early on a hot morning, prematurely causing the structure to lose its ability to cool, due to exposure to warm air. To help tenants better understand their role in maintaining a comfortable work environment, the owner is preparing an operations manual geared to individual occupants, according to Ciprazo. It is also installing shades at some locations in response to complaints about a lack of visual privacy in private offices and glare on computer screens under certain daylighting conditions.

The GSA is gathering less anecdotal information through an extensive postoccupancy evaluation. Over the next 18 months, researchers will evaluate energy consumption, lighting levels, acoustics, temperature, and air quality, as well as more subjective factors, such as employee satisfaction. Project participants are confident that the building will perform as predicted once it is fully commissioned and the tenants become familiar with their role in its operations. Even so, they do not foresee a proliferation of naturally ventilated office towers across the U.S., since there are few other places with the right climate conditions. Instead, they say, the lesson of the Federal Building is about achieving sustainability through a deep understanding of site and location. According to McConahey, "appropriate engineering solutions arise out of groundedness." ■

For sources, see page 132.

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CRITICISM: One person at a time

Sylvia Lavin, *a professor and the former chair at the University of California at Los Angeles's Department of Architecture and Urban Design, has written extensively on architecture and the work of Thom Mayne and Morphosis, including a contribution to the 2006 book* Fresh Morphosis. *Her tenure as chair at UCLA included working with Mayne, also a professor in the department. In this essay, she considers the San Francisco Federal Building in terms of a global war on terrorism, where governments matter less than individual terrorists operating across borders. For Lavin, architecture must change to meet these terms, for the architect's place is no longer to criticize institutions in order to effect utopian change, but to reach the individual people within those institutions, which offers the best hope for improving the world.*

What does it mean for a Pritzker Prize–winning architect to build for the federal government as it wages a war of choice? In the past, I would have said this was an unreasonable question to ask an architect. I would have explained that we ask such questions because it's easier to blame homelessness, for example, on architects because they design houses rather than on the social and economic systems that structure housing. Architects have extra social obligations because they are educated and belong to the professional classes, but not because they are architects.

I would have invoked the notion that architecture is a relatively autonomous discipline. Just as lawyering is not "the law," architecture is not reducible to the sociology of building use, and its structures not synonymous with the institutions they house. I would, in other words, have set up a perimeter protecting the autonomy of architecture as a discipline—with its own internal rules and language—from the messiness of building as a professional and material practice. Furthermore, I would have felt it was my social obligation to keep architecture free from such contaminations, able to pursue issues not dictated by the pursuit of political or economic advantage.

But that was in the past. Today, suicide bombers in public places and elective warfare have collapsed the distinction between the civilian and the military realms, between blameless bystanders and legitimate targets. And because the logic that maintained these oppositions—between personal innocence and institutional responsibility—is the same logic that separated architecture as a discipline from building as a profession, architectural autonomy must now be added to the list of the casualties of war.

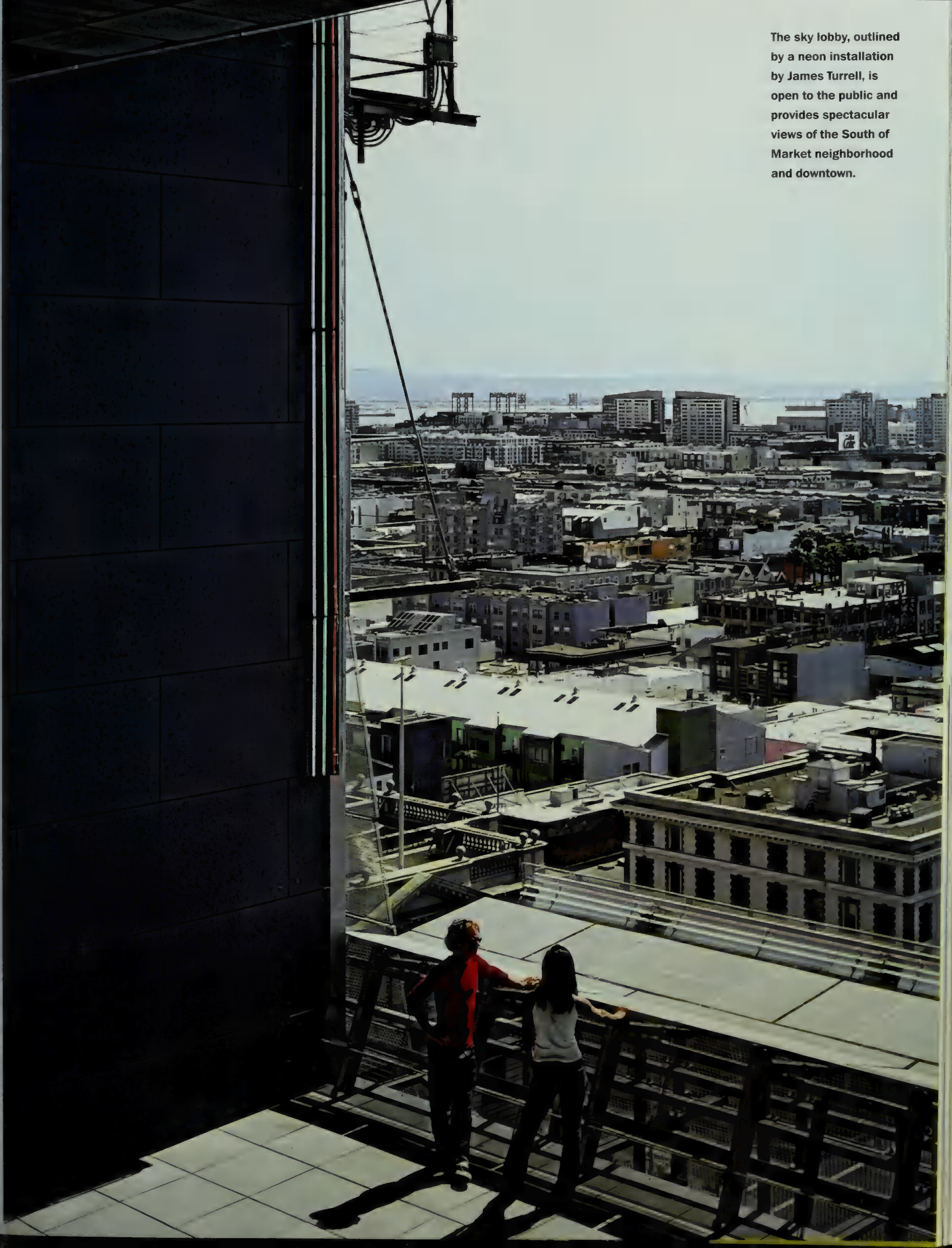
Morphosis's Federal Building is both a good and a bad excuse to consider the impact for architecture of losing its autonomy. Bad, because it is always onerous to use a single example to examine a general condition. And worse, because while Thom Mayne has fought to strengthen the cause of architectural self-determination against the forces that make architecture a weak service provider, he has simultaneously fought to engage the political process, deliberately seeking work outside the cultural sphere and within the milieu determined by restrictive public agencies.

But these reasons also make the Federal Building a potent demonstration of why these questions need asking now. First, the utter mediocrity of most public and especially federal buildings of the past few decades has kept them out of the public eye. The General Services Administration's Design Excellence Program has increased expectations, and Mayne is now its best-known poster boy. Second, Mayne describes his project as a unique combination of avant-garde formal autonomy and political engagement. He claims the capital he gains as a form giver makes him more effective in the social world and that he has thus become a new kind of critical architect who works with and through institutions rather than simply against them. Finally, the Federal Building is situated within the increasing misalignment of a series of once-coherent American beliefs: It is not a traditional civic monument, but an office building doubling as a representation of a federal government led by men in Washington, D.C., who like to eat McDonald's food and pretzels in a city known for high cuisine and progressive social policy but retrograde politics and conservative architecture.

This desynchronization of beliefs and institutions previously understood as intrinsically consistent may injure architectural autonomy but may also be a productive impetus for its reconsideration. A common refrain of contemporary warfare is that battle is waged against regimes not individuals—the U.S. didn't like Saddam Hussein as head of state, but Americans love the Iraqi people. This is the same model that organized the avant-garde who fought against the bourgeoisie as a social category but relied on the progressive patronage of its individual members. Historically, then, critical architects, like military generals, target institutions, not people. But increasingly, institutions that once had to be pushed to embrace modern secularism are now more progressive than the often deeply religious, culturally fixed, and socially conservative individuals running them.

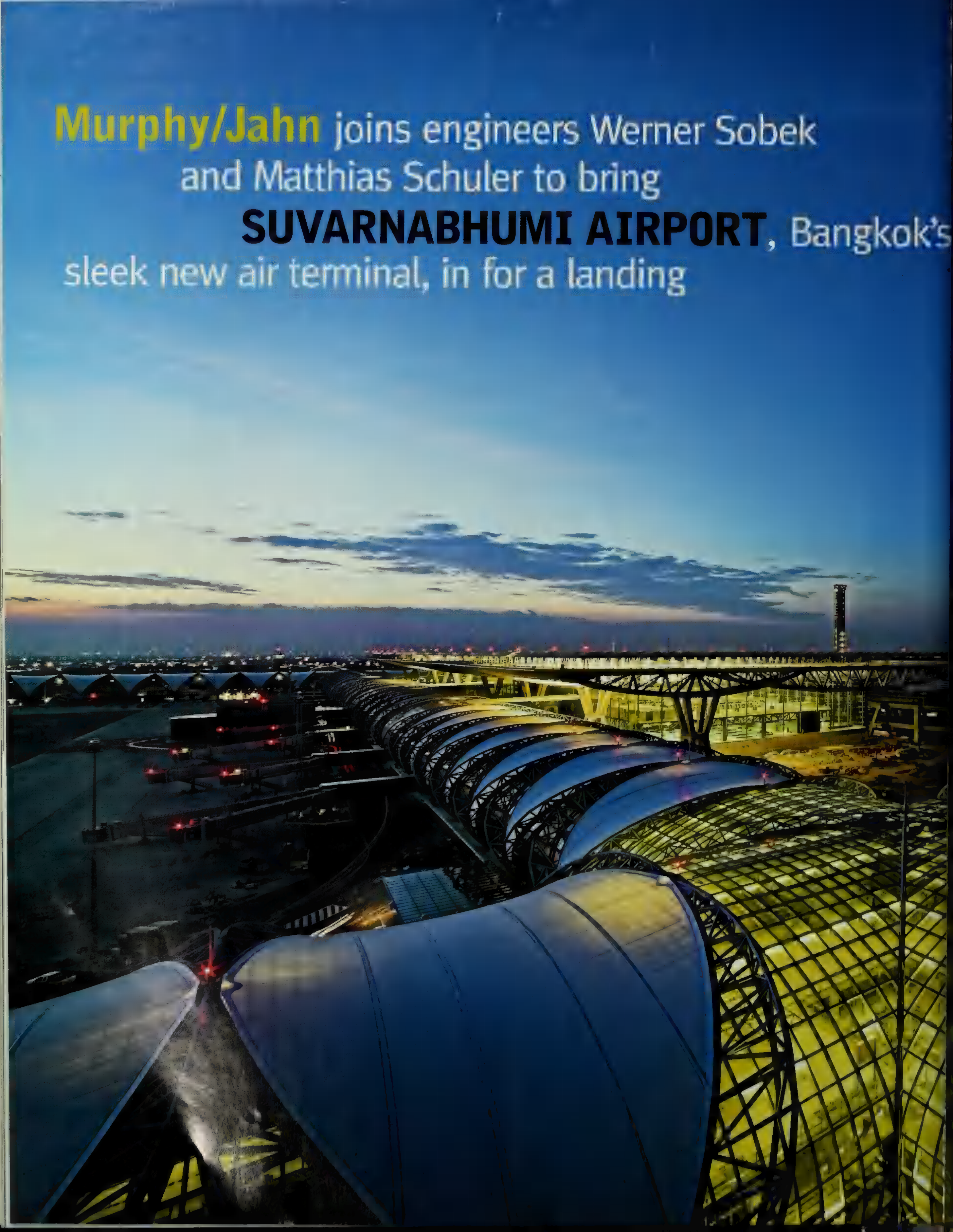
The Morphosis design does not question the authority of the federal government or undermine its will to appear to occupy a moral high ground: Indeed, I suspect the design will make most federal employees feel virtuous about going green and grateful for the fresh air and great views. But since the most direct means of effecting change is no longer the government as such but the people who vote (or don't vote) for our elected officials, i is now necessary to ask, "Just who will be going tc work in the Federal Building every day?" Certainl not the resistant proletariat for whom the Russians designed housing in the 1920s and Le Corbusie the Unité, the organizational models adapted b Morphosis for this office building. Instead, th employees here, necessarily U.S. citizens, can at bes feign indifference to the government's internationa policies. For an architect with Thom Mayne's polit ical persuasions, manifested precisely in his choic of architectural precedents, these "but-I-just-work here" users are more combatants than allies.

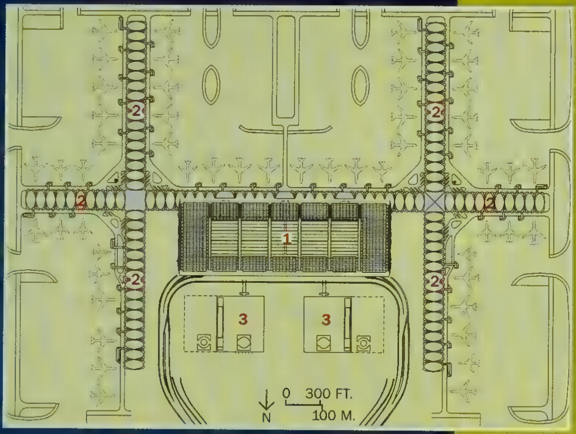
Once it becomes permissible to see th user as a potential soft target (an undoubtedl sacrilegious observation, since architects alway overidealize the user), it also becomes conceivabl that architecture may lose the war on autonom but win the battle to effect change. So maybe th big battles are the micro-events that wil inevitably occur in the Federal Building's skip stop elevators, indoor landscapes, and outdoo living room: all these misaligned and mismatche spaces where a Bay Area mix of users who ma share nothing more than a preference for stucc and gingerbread over glass and steel will go abou their supposedly apolitical business. This may nc seem like much on an institutional level, but I lik to think that this contemporary user will mis exploiting natural ventilation when at home, th chance encounter in a sky lobby, the charge of a environment filled with newness, and above a the feeling of feeling virtuous. In this age of glob warfare fought in local theaters of operations, th common denominator of what Mayne likes to ca his singular buildings and suicide bombing turns out to be just one person at a time. This pe son is no longer intrinsically innocent an sacrosanct, no longer amasses into a necessari virtuous community, and no longer occupies preternaturally demilitarized zone called "publ space." This person is a target, one that archite ture like that of Morphosis—once understood be autonomous because it focuses its effects o individual experience rather than institution program—has both a new obligation and pote tial to explosively engage. ■

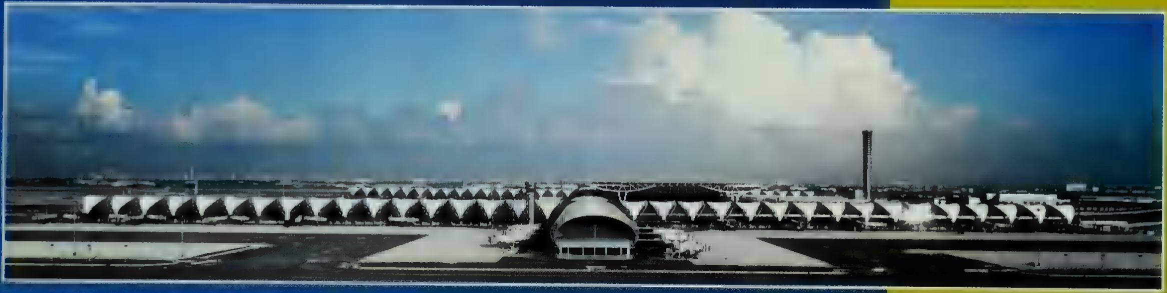


The sky lobby, outlined by a neon installation by James Turrell, is open to the public and provides spectacular views of the South of Market neighborhood and downtown.

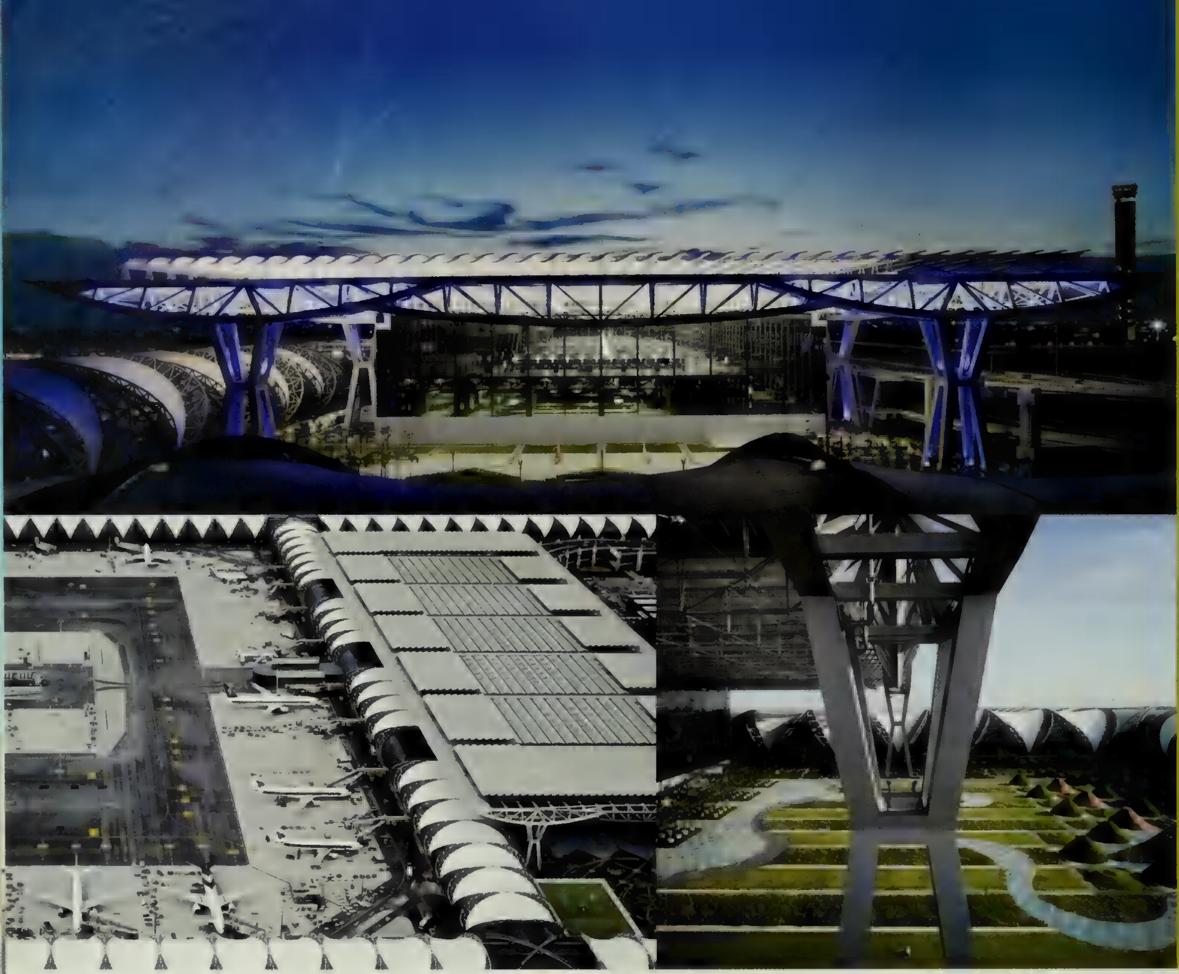
Murphy/Jahn joins engineers Werner Sobek and Matthias Schuler to bring **SUVARNABHUMI AIRPORT**, Bangkok's sleek new air terminal, in for a landing







The terminal has a central pavilion (1) beneath a great cantilevered canopy, long tubular concourses (2) extending out from under the roof, and paired parking structures (3) in front of the main building, along the entry road. The envelope enclosing the concourses (above and left) incorporates tensile fabric with glazing and curved steel trusses. The concourses provide access to the jetway gates (left).



Photographer Rainer Viertlboeck's highly interpretive pictures emphasize the building's nearly monochromatic silvery-gray palette in contrast to cobalt-blue lighting by Yann Kersalé of AIK (opposite and this page, top). Geometric gardens flank the main pavilion (near left). Though the design offers many jetway gates (far left), bus-to-plane transfers are common here.

By John Morris Dixon, FAIA

As a national capital and a regional crossroads of commerce and tourism, Bangkok has long supported one of the world's busiest airports—currently 15th in passenger volume. In designing Suvarnabhumi Airport, the city's new international hub, Chicago-based architects Murphy/Jahn realized from the outset that the passenger terminal would need to accommodate a vast scale of operations and express its pivotal importance to Thailand. Suvarnabhumi, meaning "land of gold," has a capacity of 45 million passengers annually, with 56 jetway (plus 64 bus-to-plane) gates, served by some 6 million square feet of floor area. Planned subsequent phases will increase its capacity to 100 million passengers per year.

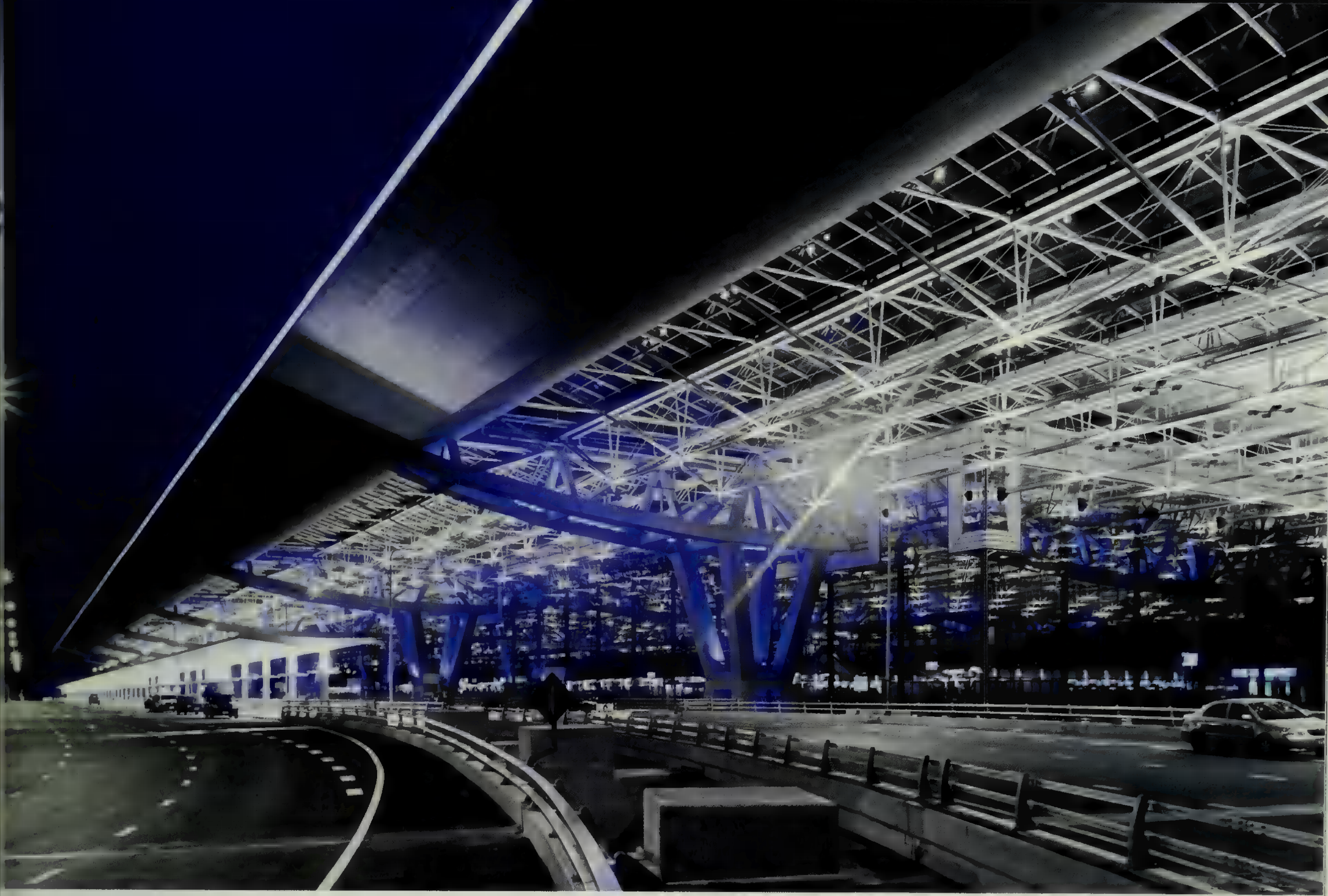
The design, winner of an invited international competition held in 1994, presents a powerful image: a lofty pavilion under a gigantic canopy hovering over an area exceeding 1.2 million square feet, with tubular concourses extending from it. Though the concourses feature the kind of emphatically repeating structural modules that characterize entire recent air terminals, such as Norman Foster's in Hong Kong [RECORD, November 1998, page 92] or Richard Rogers's in Madrid [RECORD, October 2005, page 150], Suvarnabhumi rises to a dominant central volume. Like those other major airports, however, Bangkok's could not have been realized without feats of structural engineering. It also demanded significant rethinking of interior climate control.

John Morris Dixon, FAIA, is former editor in chief of Progressive Architecture.

Project: *Suvarnabhumi Airport, Bangkok*
Architect: *Murphy/Jahn*
Associate architect/engineer: *ACT*
Project manager: *TAMS/Earth Tech*
Engineers: *Werner Sobek Ingenieure (structural concept, concourse superstructure, facades); Transsolar Energietechnik (climate and environmental concept); Martin/Martin (main terminal superstructure); John A. Martin & Associates (structural concrete); Flack + Kurtz (m/e/p)*
Consultants: *AIK—Yann Kersalé (lighting art); BNP (baggage)*
General contractor: *ITO Joint*

Since opening in late 2006, Suvarnabhumi has faced more than the usual spate of start-up stumbles and critical press. Objections—focused on everything from circulation, seating, and restrooms to cracked runways—have been intensified by accusations of corrupt construction management and concession leasing. Some scheduled, non-connecting flights have already been shifted back to the new airport's dowdy but dependable predecessor, Don Muong, a facility that was to be relegated to private and military aviation.

Since Suvarnabhumi represents a huge public and private investment, said to exceed $3 billion, including aircraft-maintenance facilities, parking garages, and a hotel (in addition to the sleek new highway connecting the terminal to the city and the mass-transit link currently under construction), the airport management is trying to address the problems. Many of the functional shortcomings stem from retail operations that far exceed the scheme's intended capacity, plus ad



hoc counters for newly proliferating budget carriers.

Initial glitches aside, the airport will clearly remain Bangkok's key connection to the world, and the building's sheer size and structural bravura are bound to impress any traveler. Since the approach to the terminal must pass a gauntlet of ancillary buildings by other firms, including the new hotel, right along the main axis, Jahn has always considered it crucial that the terminal's central volume assert its primacy. (Fortunately, these new foreground structures have turned out quite discreet and neatly organized.)

As creative as the structural solutions, but scrupulously inconspicuous, is the innovative climate engineering (not called "mechanical engineering" by any of the participants). Throughout the design process, the architectural, structural, and environmental efforts were interwoven, transcending conventional hierarchies of architects and engineering consultants.

But the engineers who made it all possible were not yet involved when the scheme won the project competition. Once those consultants came on board, it became apparent that the proposal's scale demanded exceptional engineering, both to make the structure itself feasible and to manage the energy to operate it. The architects found ideal collaborators in two Stuttgart engineering firms: Werner Sobek Ingenieure, for structural issues, and Transsolar Energietechnik, for climate control.

Murphy/Jahn principal Helmut Jahn speaks of the collaboration as a transformative experience. "This was the first time in 30 years that I learned something new from engineers," he says. The joint effort "to elevate systems and construction to a level of art," he adds, required "the architect to think more about the technical consequences of his forms and the engineers to consider the aesthetic implications of their concepts."

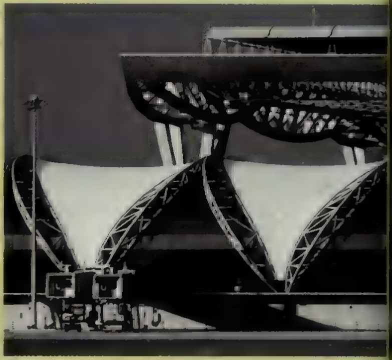
So effective was this collaboration that Murphy/Jahn went on to work with the same engineering firms on several other projects over the past decade, as the Bangkok airport proceeded by fits and starts. Sobek joined forces with the architect on the Munich Airport Center and Cologne-Bonn Airport facade, and all three firms collaborated on Bonn's Deutsche Bank Headquarters tower, Munich's Highlight Business Towers, Geneva's Serono Headquarters, and in Leverkusen, Germany, the Bayer Headquarters.

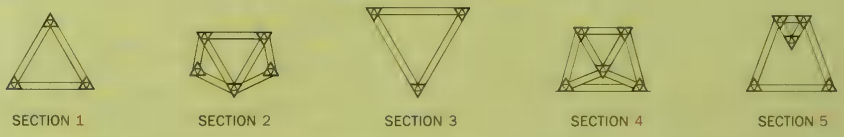
A major consideration in the Suvarnabhumi collaboration was Bangkok's intensely tropical heat, humidity, and sunlight. So the team designed the great canopy "floating" above the terminal's central hall to admit controlled rays while providing essential shading for glazed exterior walls and landside roadways. With no interior columns under this 689-by-1860-foot roof plane, the design dictated clear spans of a magnitude more often encountered in bridges. Eight 2,710-ton trusses—each spanning 413 feet, with 138-foot cantilevers at both ends—support the canopy. In silhouette, these trusses essentially diagram the bending moments acting on them, with the greatest depth at midspan and over the supports. Taking this full-scale structural lesson further, each truss changes in cross section, depending on which chord, upper or lower, is in compression: Paired members signify compression and single ones tension, since the latter condition requires less steel for comparable loads.

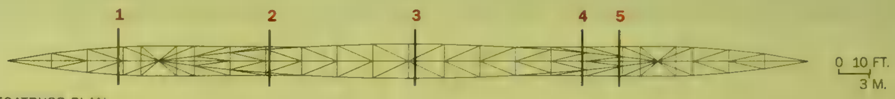
These megatrusses make possible a column-free space of urban

Structural feats made the competition-winning scheme possible

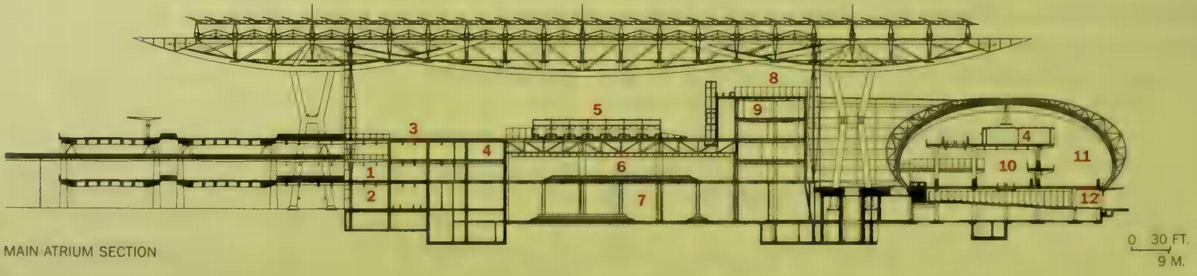
Designed by Murphy/Jahn, the main control tower is reportedly the world's tallest, rising 434 feet (near right). The central pavilion's 689-by-1,860-foot roof plane allows for a vast column-free interior. Eight 2,710-ton trusses—each spanning 413 feet, with 138-foot cantilevers at either end—support the canopy. These trusses, changing often in cross section (below right), are essentially diagrams of the bending moments acting on them, with the greatest depth at midspan and over the supports. The curved five-point trusses in the concourse (opposite) hold alternating sections of tensile fabric and glazing (far right and opposite, left).





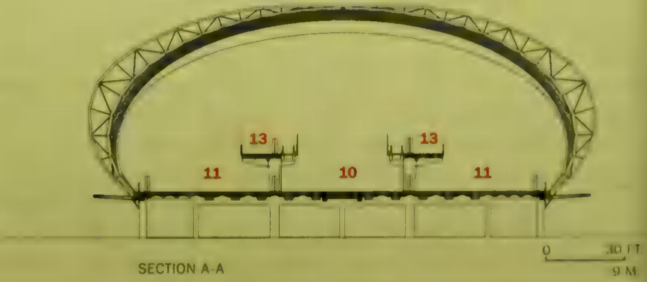


MEGATRUSS PLAN

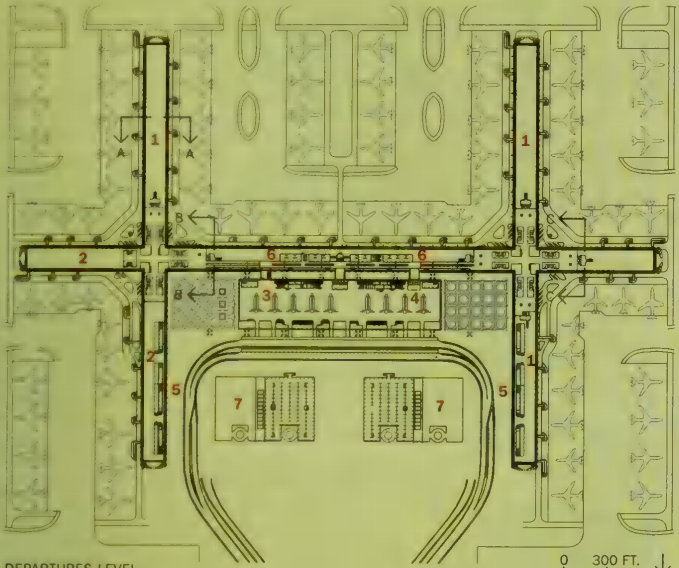


MAIN ATRIUM SECTION

1. *Arrivals lobby*
2. *Bus lobby*
3. *Departure lobby*
4. *Retail*
5. *Check-in counters*
6. *Baggage claim*
7. *Baggage make-up hall*
8. *Restaurant/observation deck*
9. *Office*
10. *International arrivals corridor*
11. *International hold room*
12. *Bus gate*
13. *International departures corridor*
14. *Domestic departures corridor*
15. *Domestic arrivals corridor*
16. *Lavatory*
17. *Waiting lounge*
18. *International airline lounge*

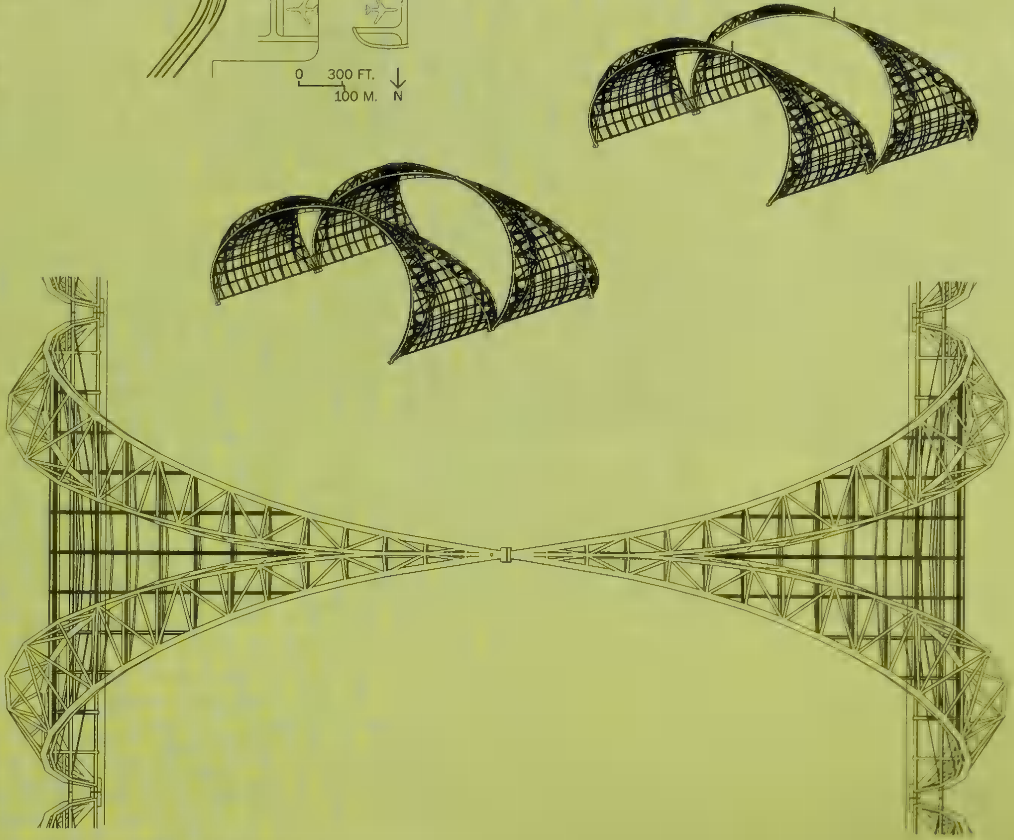


SECTION A-A

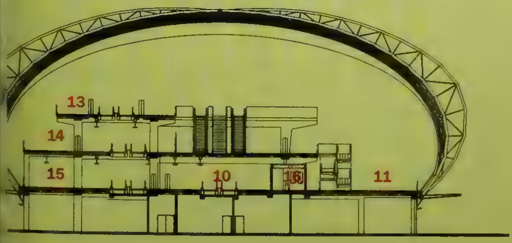


DEPARTURES LEVEL

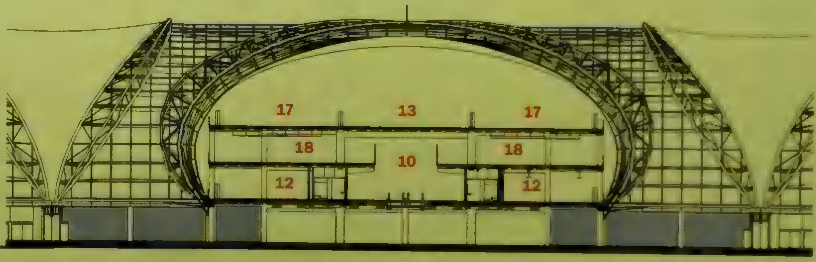
1. *International gates*
2. *Domestic gates*
3. *Domestic check-in*
4. *International check-in*
5. *Offices*
6. *Retail*
7. *Parking*



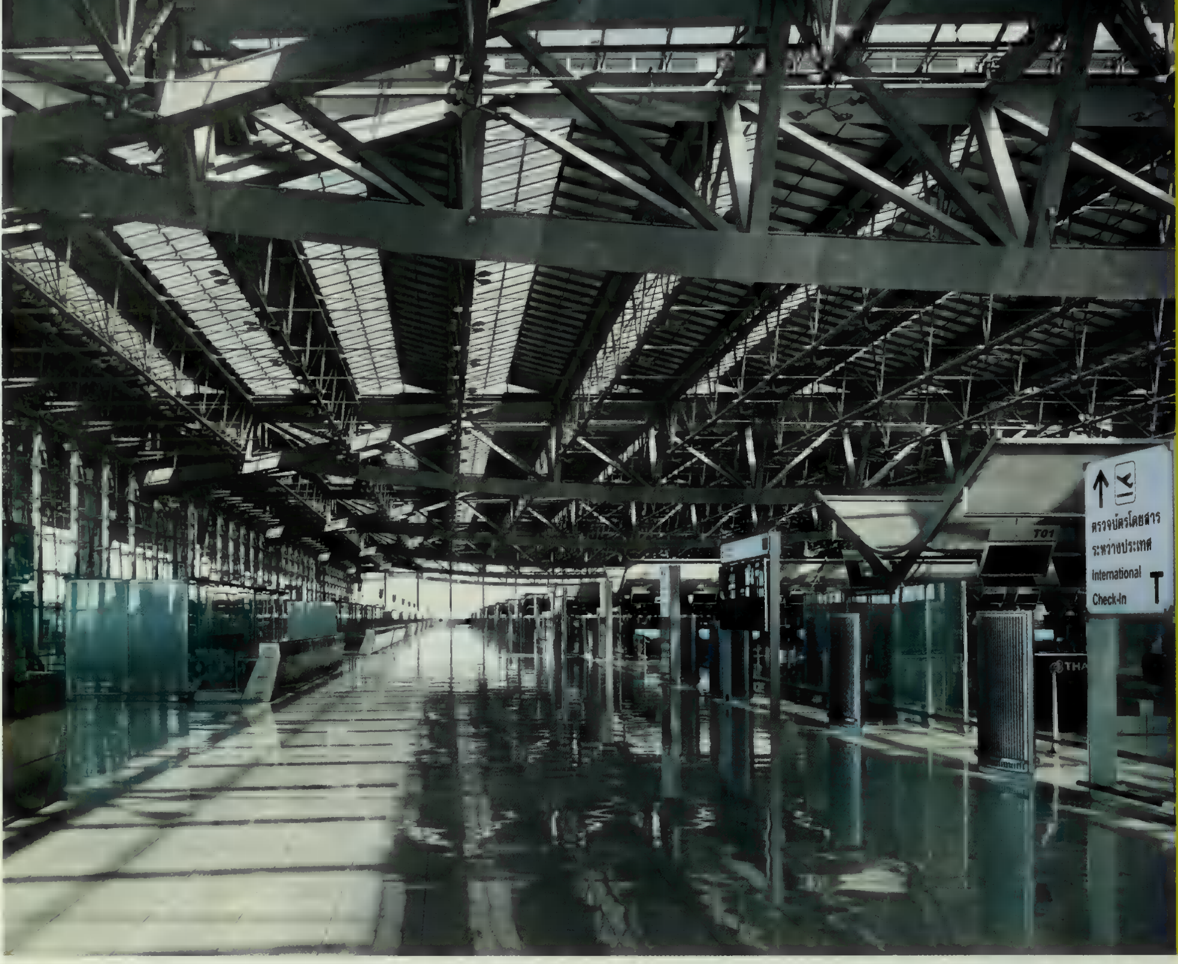
CONCOURSE TRUSS



SECTION B-B



SECTION C-C



On the roadside, the central pavilion reveals its structural bravura through a great transparent, cable-supported facade (opposite). A key function of the roof canopy (left) is to admit enough sunlight to eliminate the need for electric illumination during the day. Since a remarkably small fraction of the ambient light fulfills this need, the architects and engineers gave the roof a ripple of low-sloping planes with opaque aluminum-clad panels facing south, and glass fritted to 95 percent opacity facing north.

proportions. Enclosed within cable-supported walls of clear glass, this area constitutes a vast plaza with check-in counters, as at so many airports, lined up like booths in a market square. While the truss-supported canopy overhead is impressive for its structural accomplishment, its sheer scale and mass can also seem oppressive during the day when its forms are cast in shadow. But by night, blue and white light bathes the massive structural elements, making them look almost buoyant.

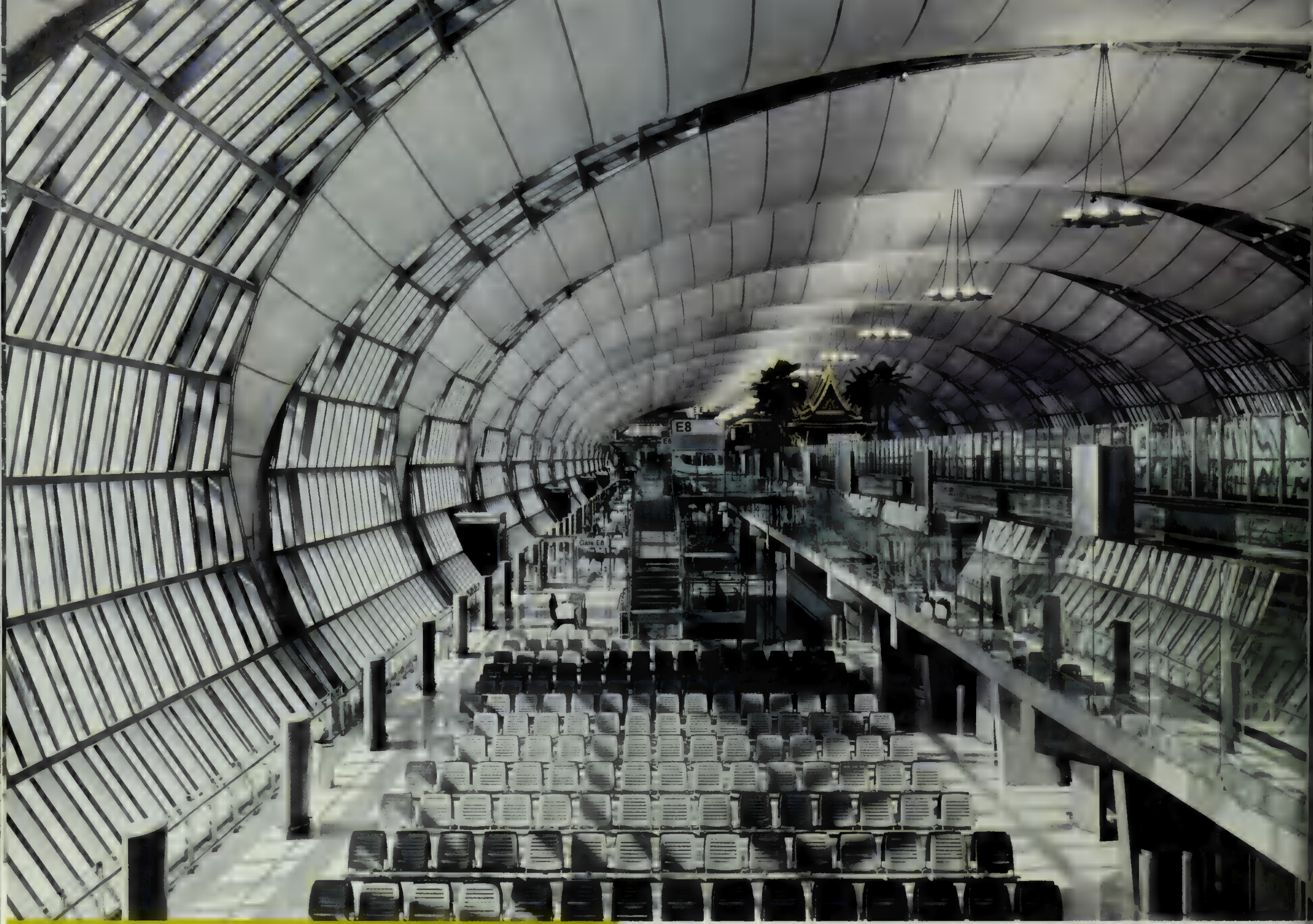
Lighting consultant Yann Kersalé of AIK chose the cobalt-blue glow to single out the main pavilion from the airport's diverse nighttime sources of illumination. Metal halide lights the columns, blue fluorescent the trusses, and blue neon the canopy's edges, with these three fixture types adjusted to achieve essentially the same color. (Jahn had integrated intensely hued lighting into an airport before, as in the 1987 United Airlines Terminal One Complex at Chicago's O'Hare International Airport.)

By day, a key function of the canopy is to admit enough sunlight to eliminate the need for electric illumination. Since a remarkably small fraction of the ambient light fulfills this need, the design team gave the roof a ripple of low-sloping planes with opaque aluminum-clad panels facing south, and glass fritted to 95 percent opacity facing north. Fixed exterior, aluminum louvers, engineered to cut out all direct rays, also shade portions of the canopy.

Even with modulated sunlight and deep overhangs, the resources required to air-condition the entire central volume to passenger-comfort levels (with a 75-degree Fahrenheit maximum and 50-to-60 percent relative humidity) would have been inordinate. This dilemma presented an ideal challenge for Transsolar principal Matthias Schuler, whose climate-engineering goal is to minimize, rather than simply fulfill, mechanical demands. For this 47-foot-high space, the firm proposed conditioning only the inhabited layer—roughly up to 8 feet above the floor in both the central hall and concourses—effectively halving the air-conditioning's energy and installation demands.

The key to stabilizing this air layer was cooling the floor slab with embedded tubes of chilled water in closed loops. By offsetting the radiation striking the floor, this "radiant slab" eliminates the destabilizing heat that would otherwise rise from it—as virtual and physical models confirmed. Cooling the floor also maintains passenger comfort levels with less air-conditioning, bringing added savings. Throughout the terminal, shoulder-high pylons, lens-shaped in plan to minimize interference with passenger circulation, supply low-velocity, conditioned air. And this stratified-air concept eliminates the glazed envelope's need for thermal insulation above the conditioned "layer." Since the upper reaches usually get warmer than the outside air, the negligible insulation value of single glazing at those heights actually helps dispel heat.

KEY TO THE CLIMATE-CONTROL SOLUTION WAS COOLING THE FLOOR SLAB WITH EMBEDDED TUBES OF CHILLED WATER.



With the intent of retaining clear views through the luminous, tubular concourses, the architects created various spatial configurations within them, inserting different levels for gateside waiting (above) versus larger circulation zones (opposite). Daylight even fills the baggage-claim [redacted] (below).

The concourses embody another structural tour de force, very different from that of the super-scaled canopy. These tubular appendages, providing access to the gates, took the same overall form even in Murphy/Jahn's competition entry, but the real integration of architecture with structural and climatic engineering came through the execution of these elements. The team configured the envelope's alternation of tensile fabric with areas of glazing so that the glass sections (defining curved triangles) remain nearly continuous at eye level. Overhead, the fabric canopy and the glazing, which progresses from a 20 percent opaque frit at its base to 80 percent at its peak, produce effective shade. Structurally, the tubular form spans the concourse's 89-foot width with five-point trusses—a configuration suggestive of linked wishbones.

A daunting set of structural, thermal, acoustic, and illumination demands challenged the design of the tensile fabric, resulting in a membrane of three layers: an outer structural and weatherproofing surface composed of polytetrafluoroethylene (PTFE)-coated, high-performance glass fiber; a middle airtight layer of polycarbonate panels, which block out aircraft noise, absorb interior sound, and stiffen the membrane against wind; an inner skin of open-weave glass fiber, transparent to sound; and an aluminum coating that reflects outside heat back toward the exterior. While the membrane is heated by lighting and occupancy on the inside, and by sunlight and the ambient air temperature on the outside, the metallic coating keeps heat from radiating to the interior. "Otherwise," says Stefan Holst, Transsolar project manager, "[the skin] could act as a big

radiator." This fabric sandwich has earned worldwide patents.

While the concourse envelope transmits only 1 to 2 percent of the available sunlight, it eliminates the need for daytime electric illumination. (Even with a graduated frit, the glazing appears entirely clear from the interior.) After dark, the metallic inner surface becomes an effective reflector for indirect lighting.

While the terminal's program has always included a very large shopping component—key to today's commerce airports—retail operators were permitted to expand far beyond the areas allocated in the design, without the architect's input or approval. To make way for this unplanned retail, four pairs of moving walkways (totaling 827 feet of walking distance) were eliminated, some proposed seating was displaced, and circulation routes constricted. Sight lines, intended to remain open and ease wayfinding, were obstructed. Management issues seem to lie behind other passenger inconveniences, such as the frequent busing to international flights even while numerous jetway gates stand idle. Repairs to faulty taxiway paving may account for some of this practice, coupled with the airlines' resistance to jetway "docking" fees that run significantly higher than at the old airport.

In the departure hall, budget airline stations now constrict the space and interfere with clear views from drop-off curb to ticket counters. In the arrivals hall, unplanned commercial kiosks crowd the area allotted for travelers to meet friends, associates, and drivers. And an initial overload on restrooms apparently resulted, in large part, from an unanticipated surge of local sightseers outside of security-screened areas, with some picnicking and staying for hours. Although those crowds are expected to dwindle, the airport is strategically inserting extra restrooms.

In zones reserved for future expansion at either end of the central pavilion, the airport now presents gardens, designed by RPU Landscape Design Group, with geometric and organic forms drawn from Thai tradition. While these areas remain accessible, the designers conceived them primarily to be viewed from a level or two above—with entry points isolated from passenger routes. And to traverse the Jungle Garden, designed by NT Architects for a space between the main pavilion and the parallel concourse, visitors must remain within glazed passageways.

In the larger scheme of things, the terminal's present functional deficiencies are prime examples of a truism: The client, whose building it is, can subvert even the best design intentions. Given the widespread objections and huge investment in this airport as a national symbol, the management is likely to reverse some of its unfortunate physical changes, enhancing the interior's experiential qualities and restoring a portion of the ample passages and uncluttered vistas that Murphy/Jahn envisioned. For designers of future public facilities, Suvarnabhumi Airport bears lessons, both inspirational and cautionary; and for passengers, the remedial measures should offer greater chances for actual enjoyment of the terminal's exhilarating spaces. ■

For sources, see page 132.

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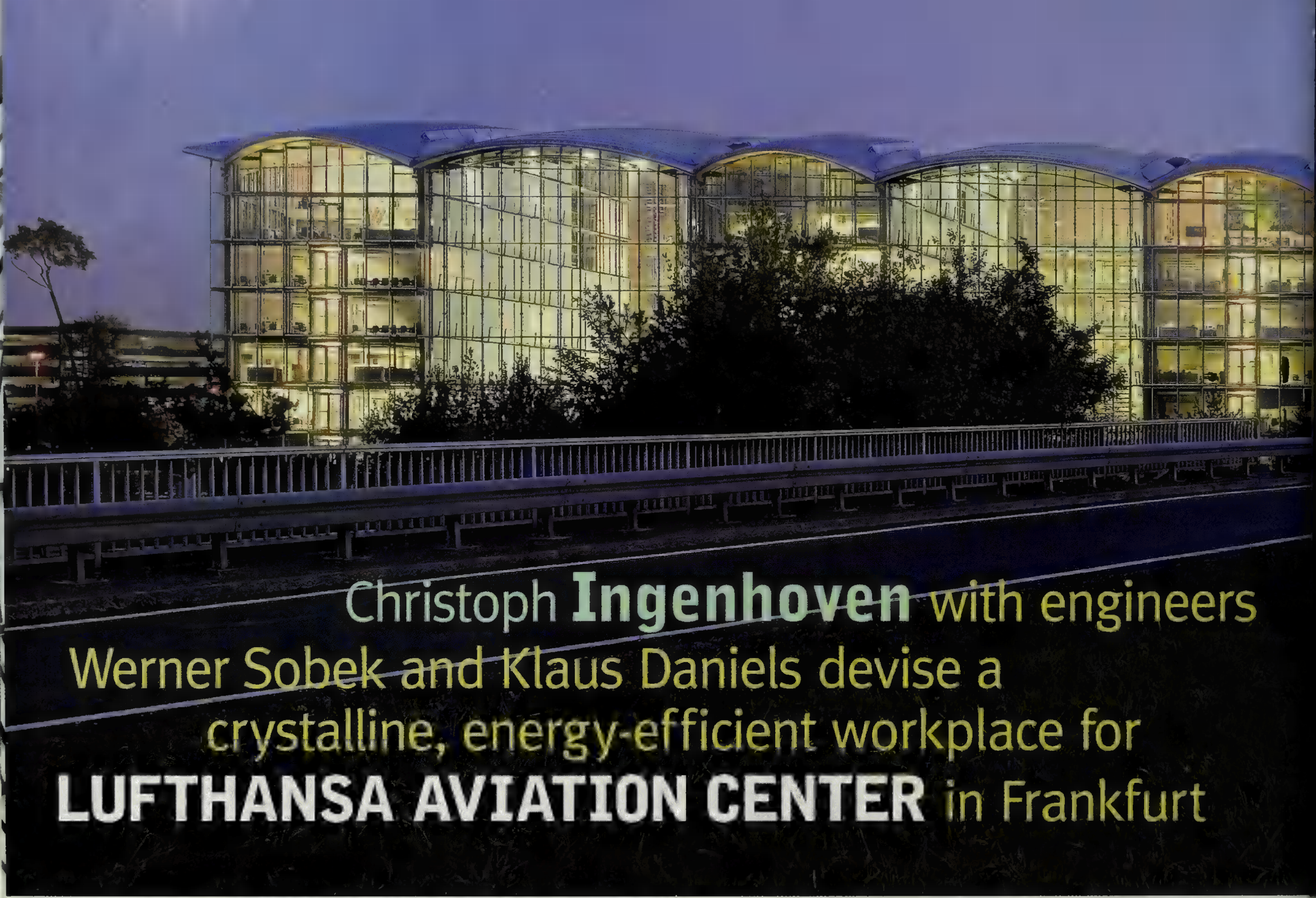
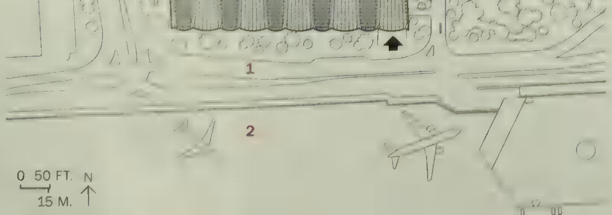


Christoph **Ingenhoven** with engineers Werner Sobek and Klaus Daniels devise a crystalline, energy-efficient workplace for **LUFTHANSA AVIATION CENTER** in Frankfurt

1. *Airport ring road*
2. *Frankfurt airfield*
3. *Space for future expansion and ramp to underground parking*



Ample glazing and a light concrete frame give the aviation center the appearance of an airy pavilion as one approaches it from the east end (above). The long, linear building, next to the airport, features skylit atriums and acoustically insulated offices.

From the roadway on the north side of the building, the alternating office and atrium bays can be seen clearly at night (left). Triple glazing on offices cuts down on the possibility of noise penetration at this busy site.

By Peter Cachola Schmal

In recent years, Christoph Ingenhoven, who began his practice in 1985 in Dusseldorf, Germany, has emerged as a formidable player in the architectural market owing to an approach that emphasizes technology and sustainability. Although his 1991 scheme for the Commerzbank Tower in Frankfurt came in second to Norman Foster's proposal, his firm, Ingenhoven Architects, went on to design an elegant 416-foot-high tower for RWE (Rheinisch-Westfälishes Elektrizitätswerk), completed in Essen in 1997. It was, he says, the first ecologically oriented high-rise designed throughout with a double-skin glass facade for natural ventilation of office areas. Currently, Ingenhoven is working on towers in Luxembourg; Osaka, Japan; and Sydney, Australia.

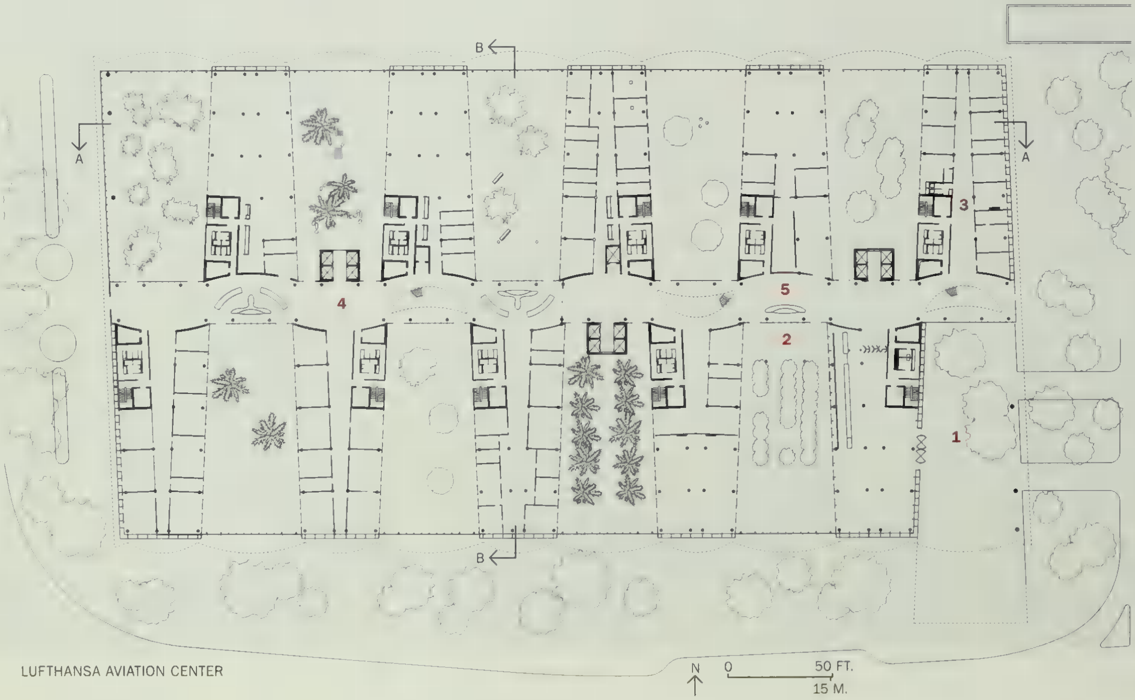
Ingenhoven's major recent work in Germany, the new Lufthansa Aviation Center, is strategically located right next to Frankfurt airport—therefore subject to considerable constraints in terms of air pollution and noise emissions. The site is squeezed between one of the most heavily used German autobahns, the ICE high-speed railroad line from Frankfurt to Cologne, with the airfield to the south. Ingenhoven's competition-winning scheme for Lufthansa is a powerful modern structure, subdivided into 10 wings, and separated by fully glazed gardens that function as thermal buffer zones and provide fresh air to the office areas for Lufthansa's 1,850 employees. The overall envelope of double- and triple-layered glass, plus various climatic tools—such as the use of embedded hydronic-loop systems to activate the thermal mass of the exposed concrete surfaces in storing and dispersing heat or cold at a later time, along with additional heat-recovery methods, highly efficient sunshading, and air-ventilation systems—are impressive. All keep the thermal loss and energy consumption to a mere 355 kilowatt hours per square foot, such a low level that the building comes close to complying with the German standard for low-energy houses. These astonishing results are the product of close collaboration with climate engineer Klaus Daniels, founder of the pioneering climate consultancy HL-Technik. Ingenhoven also joined forces with structural engineer Werner Sobek (renowned for his close cooperation with Murphy/Jahn, see page 122) to define the shapes for both the glazed and concrete roof modules. The glazed atria roofs boast a free 60-foot span and consist of barrel-shaped grid shells of nonbending, welded rectangular steel sections. They connect to the likewise barrel-shaped concrete roofs covering the office spaces, which, while shell-like in appearance,

Peter Cachola Schmal, an architect and author, is the director of the Deutsches Architektur Museum, in Frankfurt, Germany.

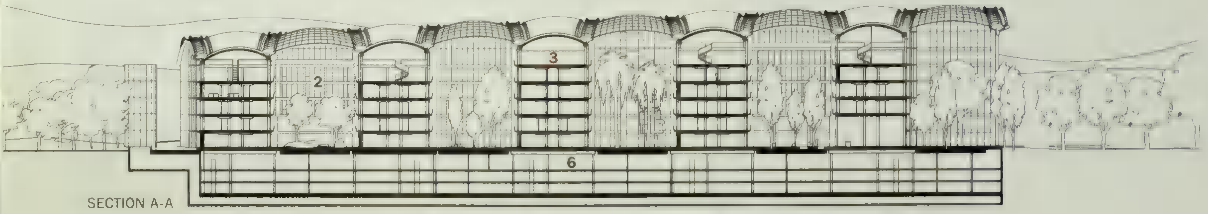
Project: *Lufthansa Aviation Center, Frankfurt, Germany*
Architect: *Ingenhoven Architects—Christoph Ingenhoven, principal*
Engineers: *Werner Sobek (structural); Klaus Daniels/HL-Technik, Brendel, Ebert (building services)*
Consultants: *DS-Plan (facade design); DS-Plan, Institut fur Bauphysik Horst Grün (building physics); Tropp Lighting Design (lighting); WKM Weber Klein Maas (landscape design); Baumgartner & Partner (energy concept)*

The 10 bays of office banks and light-filled atriums, slightly wedge-shaped in plan, are placed so that the narrow ends of the office banks and the wide ends of the atriums face toward the outside. From the exterior, the landscaped atriums seem to dominate.

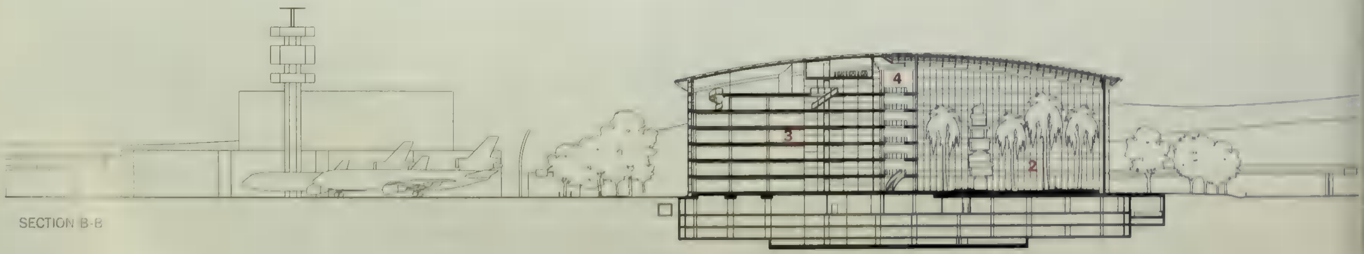
1. *Entrance portico*
2. *Atrium*
3. *Offices*
4. *Meeting points*
5. *Web terminals*
6. *Parking garage*



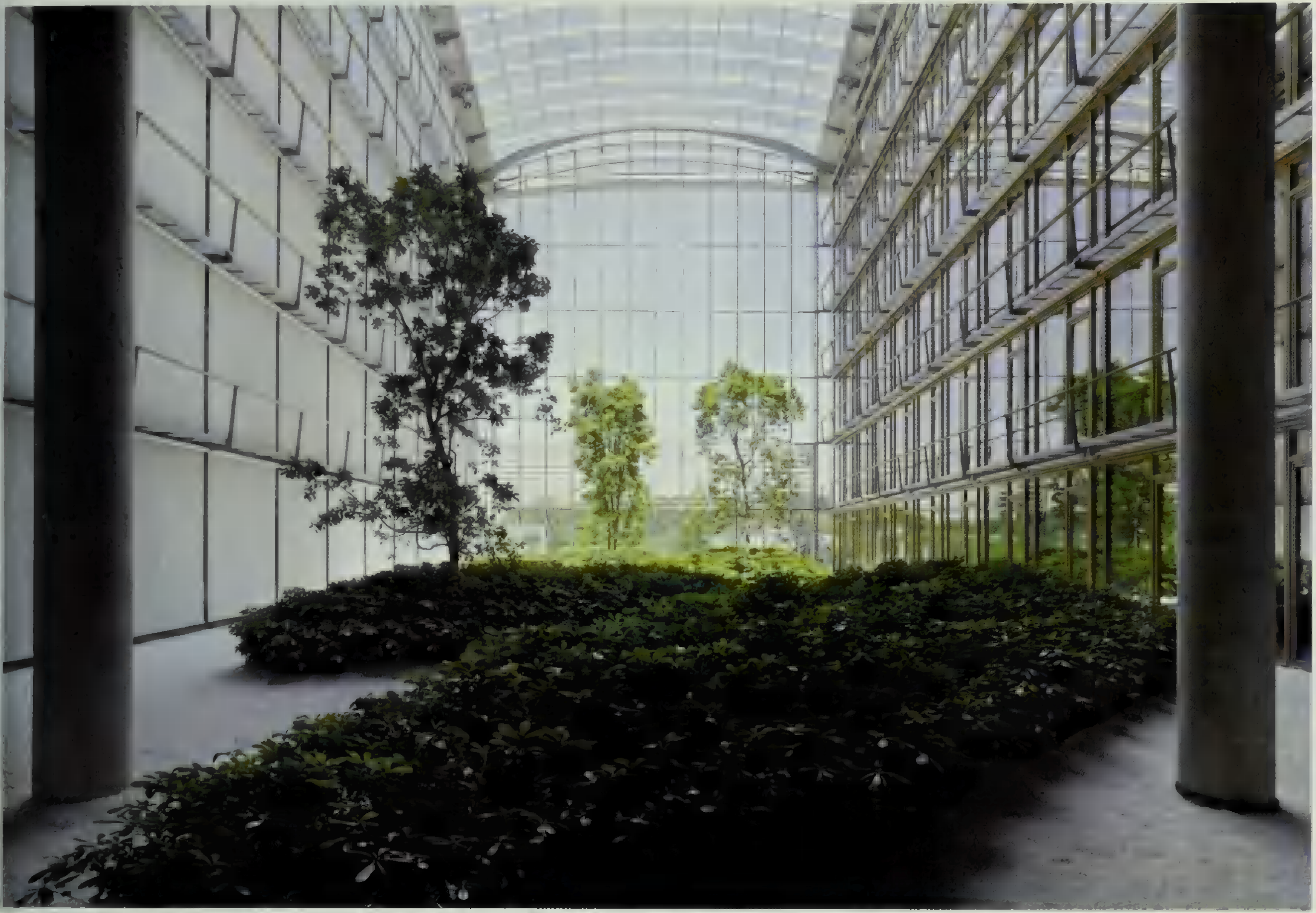
LUFTHANSA AVIATION CENTER

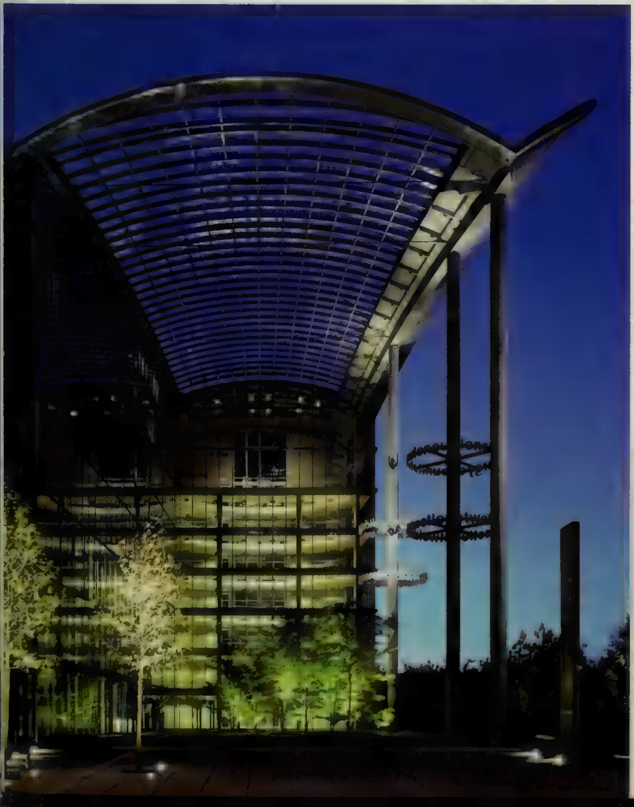


SECTION A-A



SECTION B-B

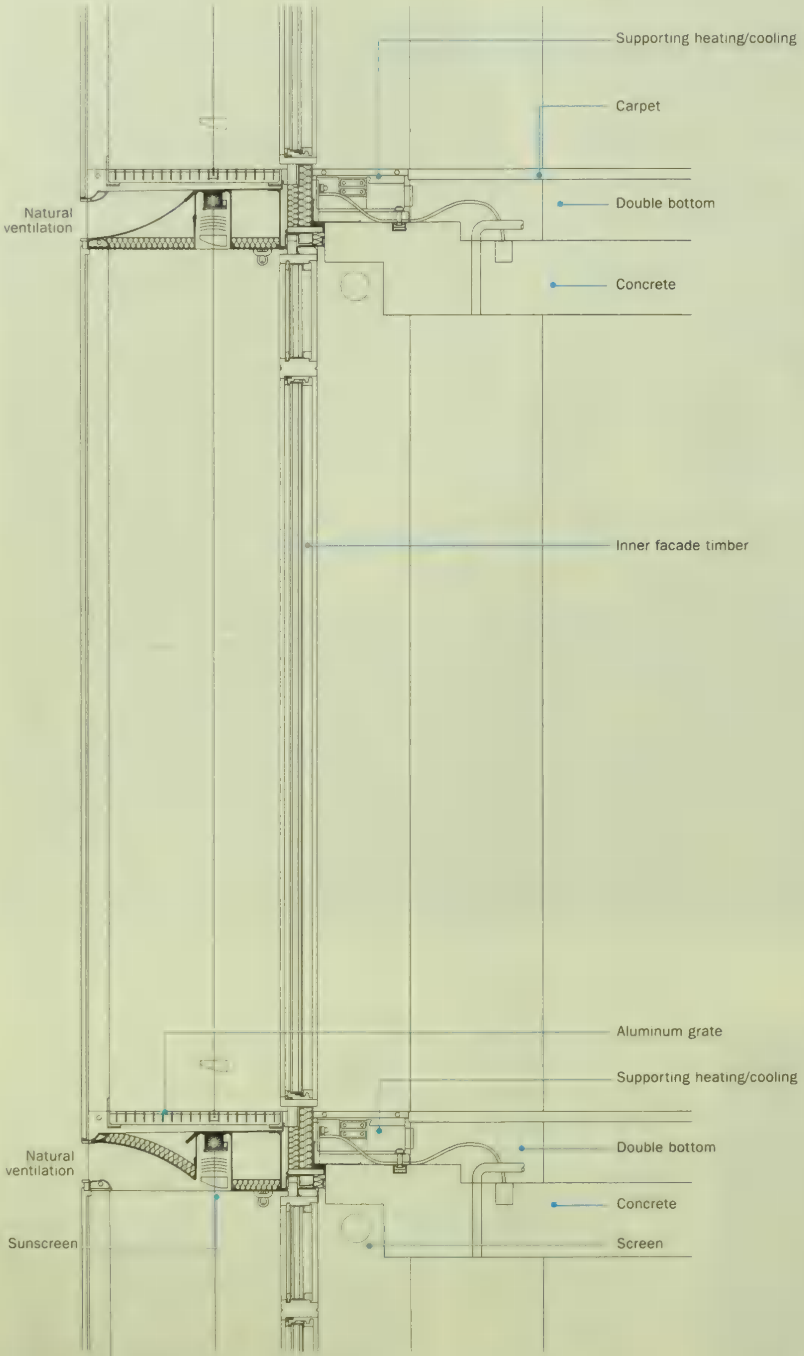




The roof of the entrance pavilion (left) and those of the atriums are double-curved steel grids with glass panels. Landscaping by WKM Weber Klein Maas uses plants from different regions to provide variety. Wood framing for interior glazing adds a natural tone to the whole.

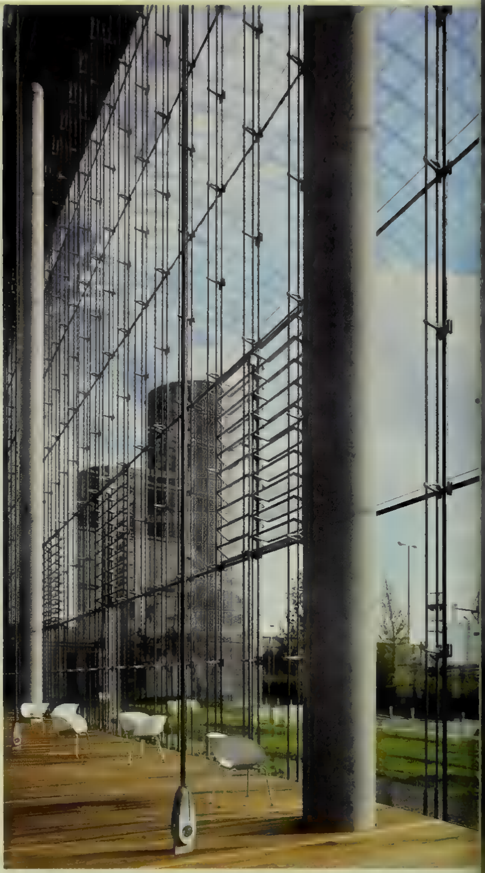
are basically bent, flat, 11-inch-thick slabs that rest on single high-performance concrete columns or cores. At the junction of the two roof systems, Ingenhoven introduced a special wing-shaped spoiler, based on aerodynamic experiments. The spoiler creates a permanently neutral wind-pressure zone above it, which helps suck exhaust air out of the atrium.

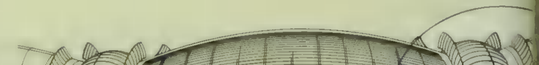
In addition to such elaborate technical details, the architects concentrated on creating a work environment aimed at fostering the well-being of the employees, with equally comfortable work spaces for all. High-quality insulation glass keeps the sound level inside the building amazingly low, and open-plan areas with fully transparent partitions walls bring in natural light in abundance. The main passageway, dotted with many cafeterialike stops, encourages informal meetings among employees. Unlike a customary stuffy corridor, Ingenhoven's exciting cutaway spatial structure fosters a variety of views into the multilayered building. On the ground floor, the gardens designed by landscape architects WKM Weber Klein Maas likewise contribute to the relaxing and airy atmosphere. The staff canteen is located on the highest floor, overlooking both the nearby Kelsterbach forest to the north as well as the airfield to the south, with huge photo prints by Thomas Demand of an artificial jungle decorating the wall. His site-



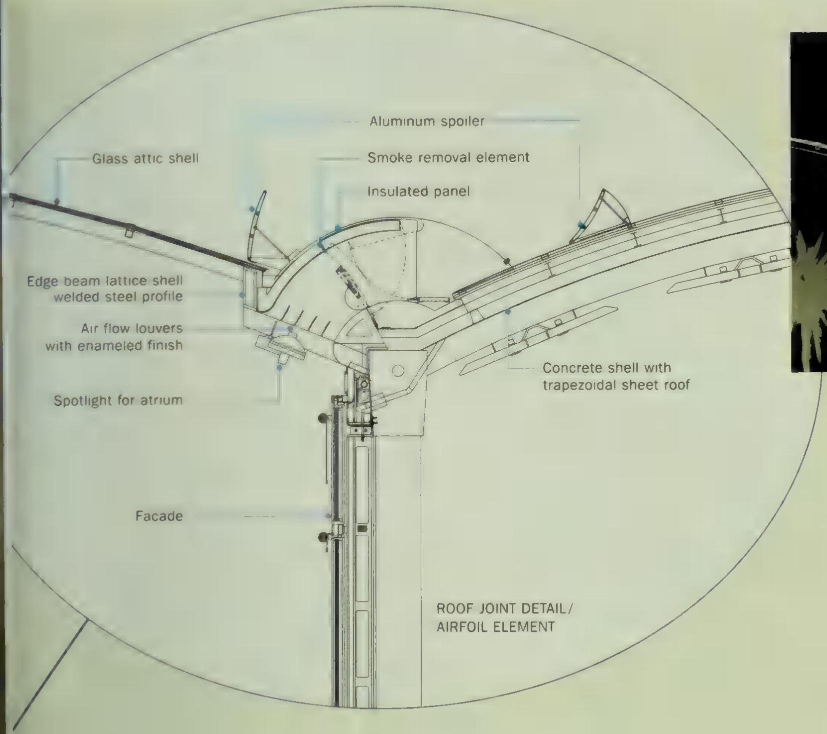
DOUBLE-SKIN FACADE DETAIL

The double-skin facade provides low-energy heating, cooling, and ventilation (section, above). Vertically tensioned cables in the atriums (top and bottom right) create a delicate framework for the glass.

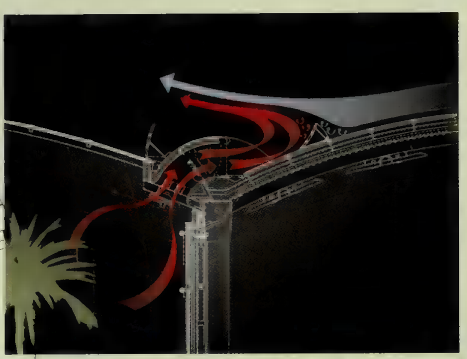


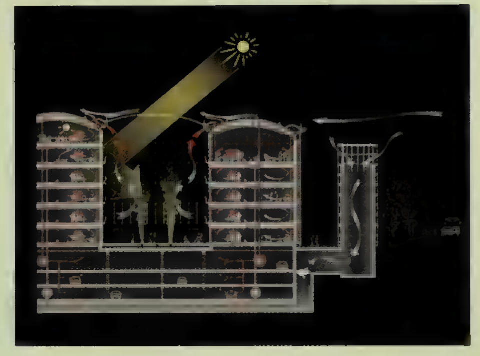


FACADE ATRIUM



ROOF JOINT DETAIL/
AIRFOIL ELEMENT



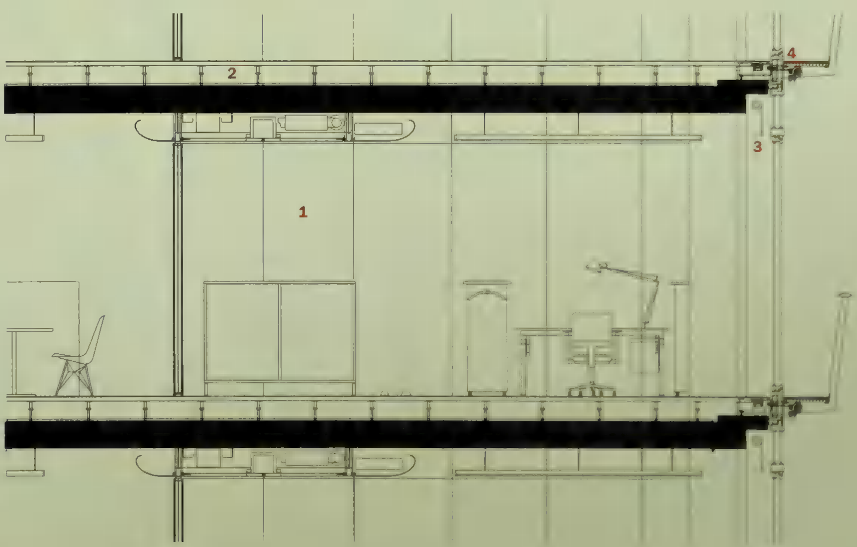


As the summer ventilation diagram shows (above), cool air is drawn through air-supply-intake stacks into the ground. As it moves up, it cools offices; warm air is then sucked up through airfoil units (top).

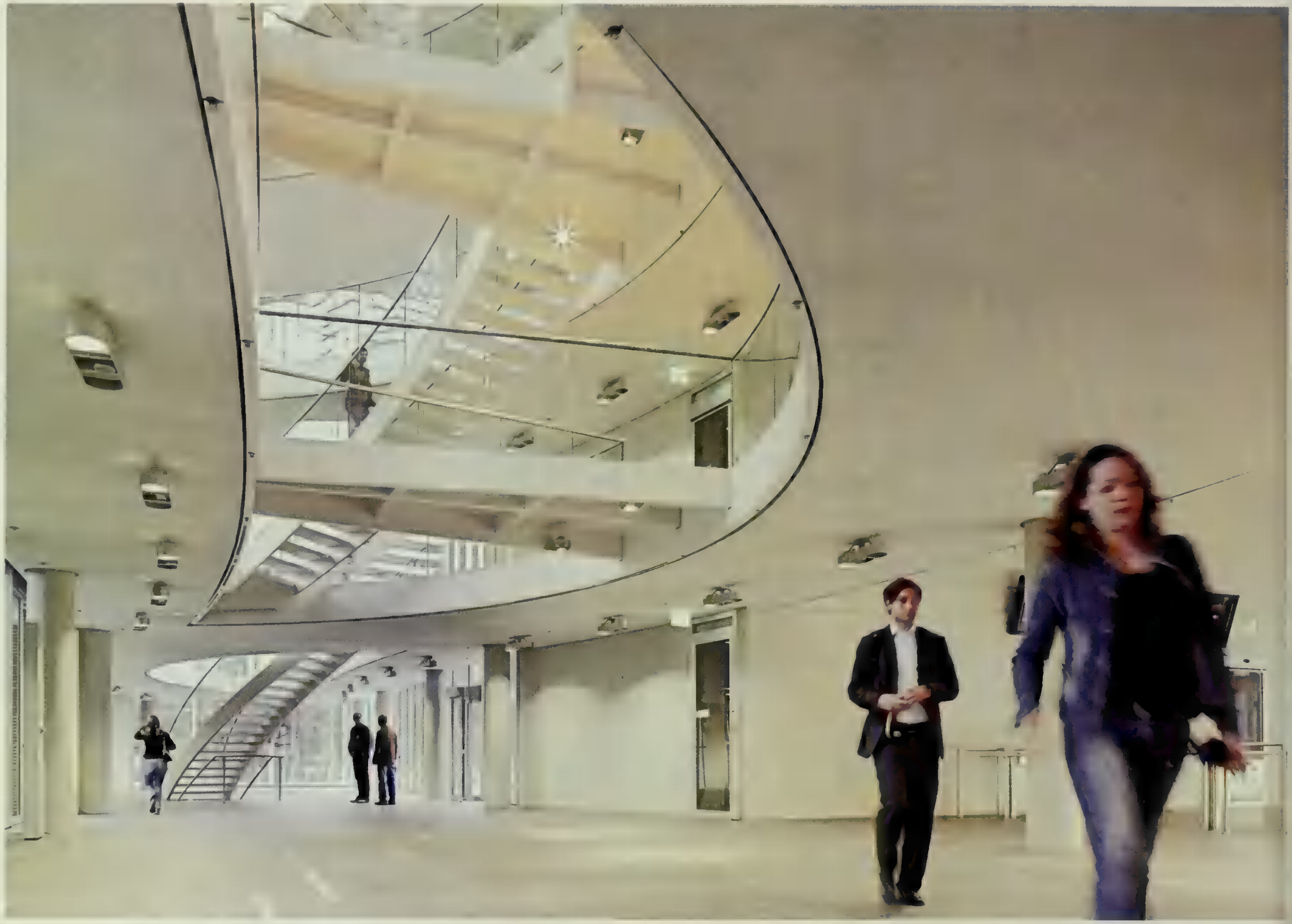
Collaborating on a low-energy, high-tech structure

Ingenhoven worked with engineer Werner Sobek to create a reinforced-concrete structure for the modular pavilions. Prestressed reinforced-concrete shells, 138 feet long and 11 inches thick, cover the office wings, while nonbending, welded, rectangular steel sections form barrel-vaulted shells for the atrium roofs. Tall, slender, reinforced-concrete columns in the corner atriums offer support without obstructing the view. At the juncture of the concrete and steel-grid roof vaults, airfoil elements help with ventilation and rainwater control. Engineer Klaus Daniels conceived the numerous climate-control elements throughout.

1. *Office module*
2. *Raised floor*
3. *Sunscreen*
4. *Perimeter heating and cooling*



OFFICE SECTION



An undulating central spine bifurcates the aviation center and is wide enough for crescent-shaped meeting places (above).

Crescent-shaped openings around curving open-riser stairs admit daylight and foster visual connection between levels.

specific work is part of the latest addition to this working environment of the future, which includes a collection of artworks put together by Max Hollein and Nikolaus Schaffhausen, both of whom are curators and museum directors.

Today, the airport is already operating at full capacity, and plans are afoot to build a third runway north of the highway that will enlarge the capacity of the airport from 53 million to 75 million passengers a year. The situation is politically intricate, but crucial for this unusual airport located only 20 minutes by car from Frankfurt's central business district. After the runway is built, a third terminal south of the current airfield, on the site of the former U.S. Rhein-Main airbase, will be constructed, enabling Lufthansa to enlarge its headquarters building.

Since Ingenhoven designed the modular office complex to allow for future additions, expansion could easily accommodate 4,500 people in the future. The building's slowly ascending profile as part of a bow-shaped crescent would find formal completion when a total length of more than 1,600 feet has been reached, three times the current 600-foot length. It will not only stand as a symbol for the paradigmatic change of office spaces in general, but will also be one of the largest sustainable work-space complexes placed at a very public traffic node. ■

For sources, see page 132.

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ositioning of
rescent-shaped
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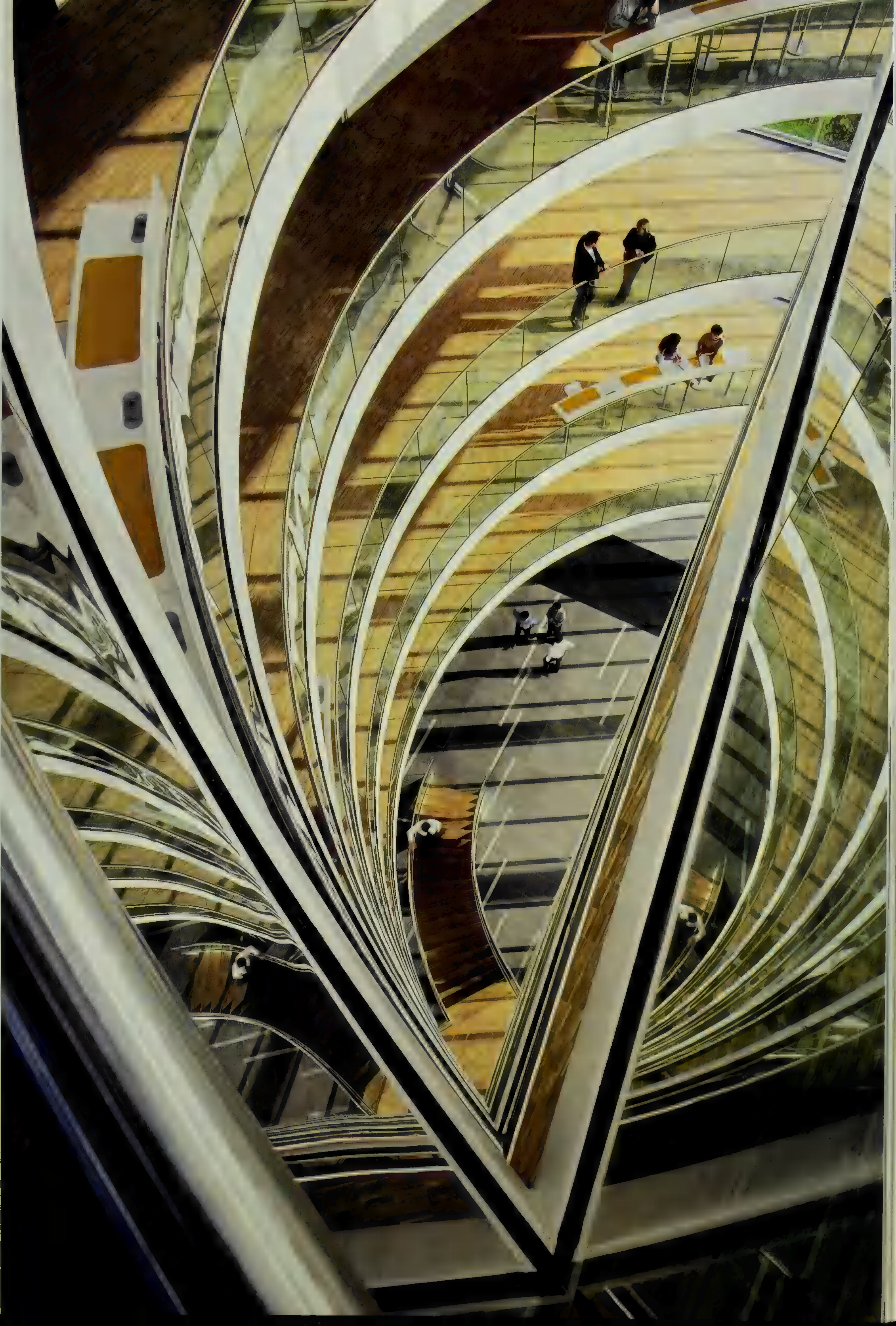
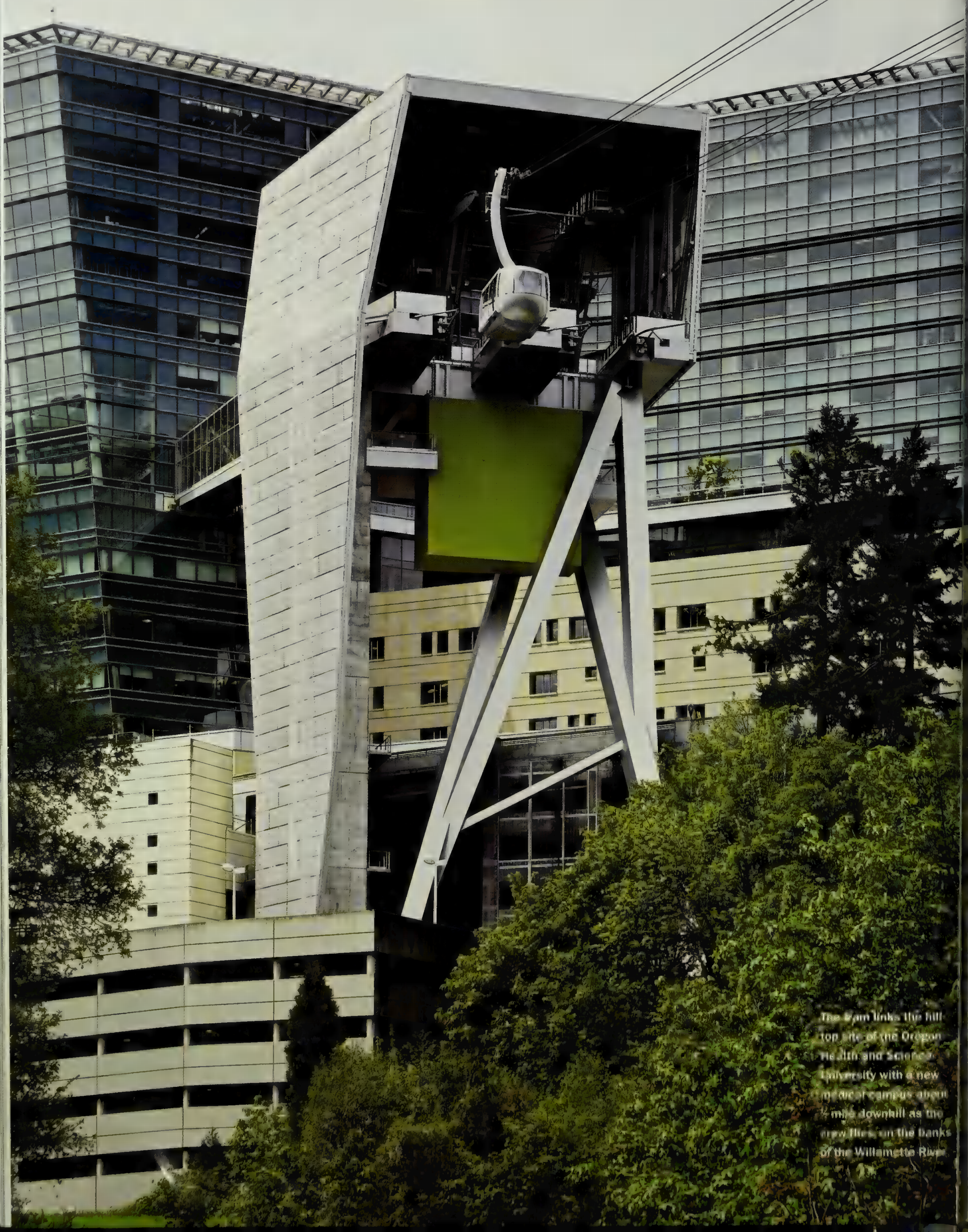
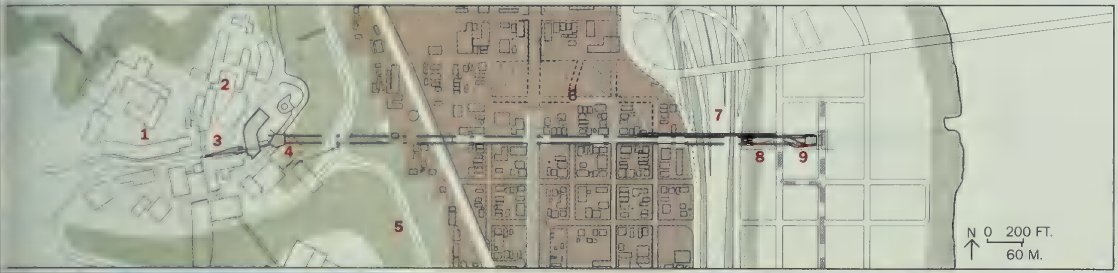




The tram links the hilltop site of the Oregon Health and Science University with a new medical campus about ½ mile downhill as the crow flies on the banks of the Willamette River.

In Portland, **AGPS Architecture** and Arup tease drama out of the **AERIAL TRAM**, a landmark of engineering bravado



1. *Oregon Health and Science University*
2. *Marquam Hill*
3. *Tram entry*
4. *Upper station*
5. *Terwilliger Parkway*
6. *Corbett Terwilliger Lair Hill Neighborhood*
7. *Pedestrian bridge*
8. *Tram tower*
9. *Lower station*

In addition to connecting to the Oregon Health and Science University's hilltop campus at one end, the project became the centerpiece for a new high-density, mixed-use waterfront neighborhood at the downhill terminus of the tram.

By Randy Gragg

Instead of landing on a mountainside and anchoring into bedrock, Portland, Oregon's new aerial tram soars between two 200-foot towers, representing Olympian engineering gymnastics. Similarly sized high-rise buildings, with no tram, might require a dozen oad cases. By contrast, the Portland tram's structural engineers, Arup, calculated more than 2,000 separate cases for such structural feats as bracing the 165 million pounds of overturning moment caused by holding 1 milion pounds of cars and cables in the air; the 20,000 tons of torque riggered by the tram cars passing one another; and the 80 tons of wind oad carried by the cables stretching along the 3,300-foot route.

In addition to constructing sky bridges and buildings that span ravines, the hilltop Oregon Health and Science University added the aerial tram as its newest connecting structure. This gesture at once connected new related development at the bottom of the hill and addressed the tangled web of passageways that define every medical campus of a certain age, including this one. Given that the tram cars would fly over Portland's oldest national historic district, two parks, 13 streets, and eight freeway lanes, the architecture needed to be compelling. The developers, university, and city organized an international design competition, which the Los Angeles/Zurich firm Angelil/Graham/Pfenninger/Scholl (agps architecture) and Arup's Los Angeles office won over three other teams. Inspired by the work of celebrated Swiss timber engineer Julius Natterer, as well as the region's tradition of loggers' yarding poles, the agps/Arup team initially proposed towers made of high-tech wood laminates and mirror-finished tram cars shaped like bubbles.

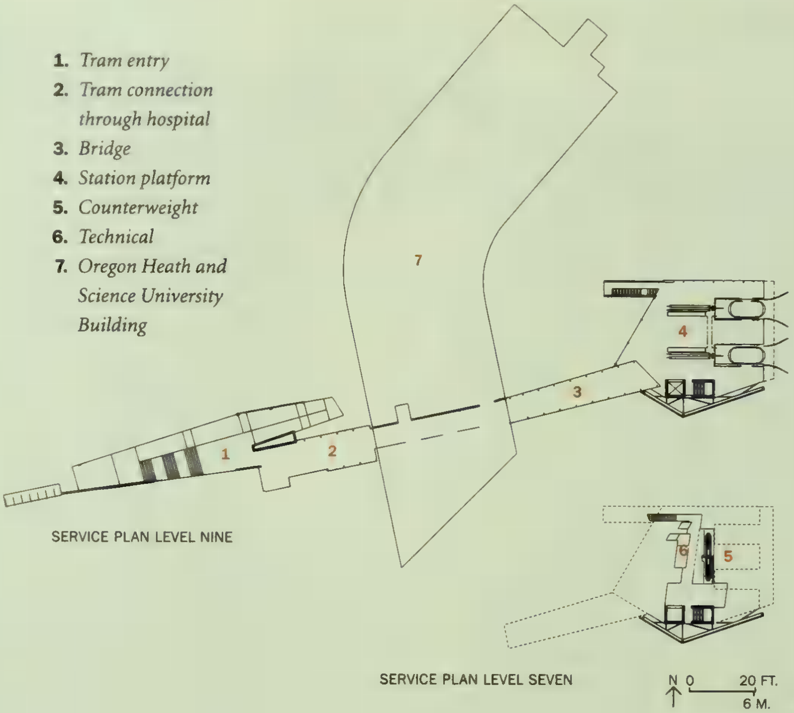
Reality quickly intruded. To fully integrate with the campus's so-called ninth floor—a single-level series of corridors and sky bridges connecting all of the hilly campus's patient-care and research facilities—the tram needed to land at a new hospital expansion already under construction. University officials worried the tram's 470-kilowatt motor turning an 8-foot "bullwheel" coupled with a 40-ton concrete counterweight constantly moving up and down would vibrate the hospital's microsurgery facilities. This led the engineering team to structurally separate the tram from the hospital. Thus, a freestanding tower had to serve as the upper station while holding 1 million pounds of tram cars and cables aloft.

The architect and engineers knew the loads would be extreme

Randy Gragg is the former architecture critic for The Oregonian. *He is the editor of a new shelter and city design magazine,* Portland Spaces, *making its debut in January.*

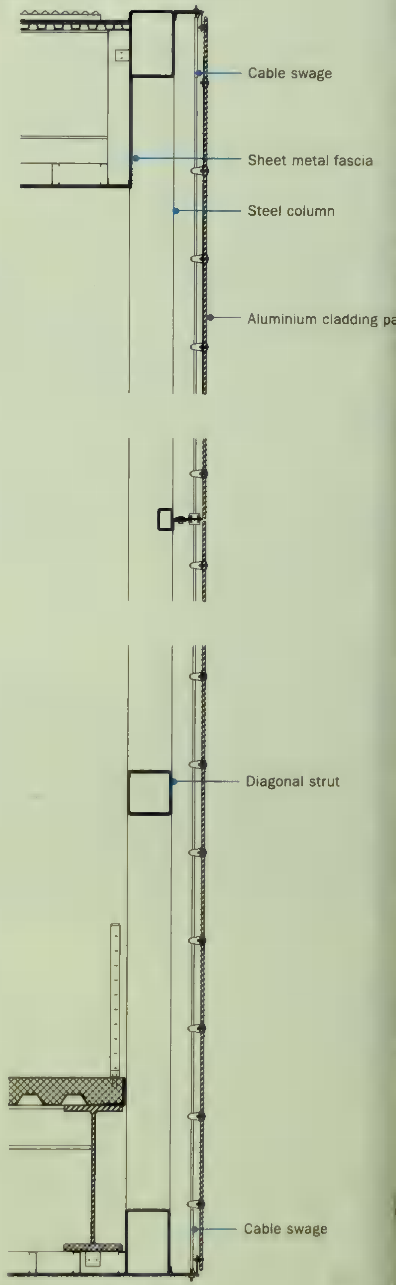
Project: *Portland Aerial Tram, Oregon*
Architect: *agps architecture—Sarah Graham, AIA, partner; Marc Angélil, Moshik Mah, Mark Motonaga, Joe Baldwin, Scott Utterstrom and Chet Callahan, project team*
Engineers: *Arup (structural, m/e/p); Dewhurst Macfarlane and Partners (facade engineering); Geo Design (geotechnical); W&H Pacific (civic)*
General contractor: *Kiewit Pacific Company*

1. *Tram entry*
2. *Tram connection through hospital*
3. *Bridge*
4. *Station platform*
5. *Counterweight*
6. *Technical*
7. *Oregon Heath and Science University Building*

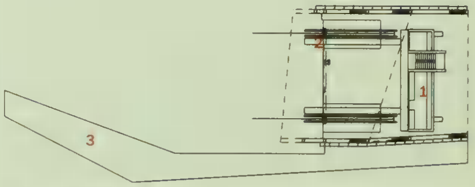


SERVICE PLAN LEVEL NINE

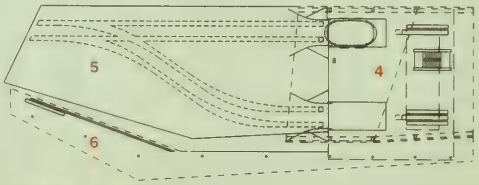
SERVICE PLAN LEVEL SEVEN



NORTH WALL SECTION

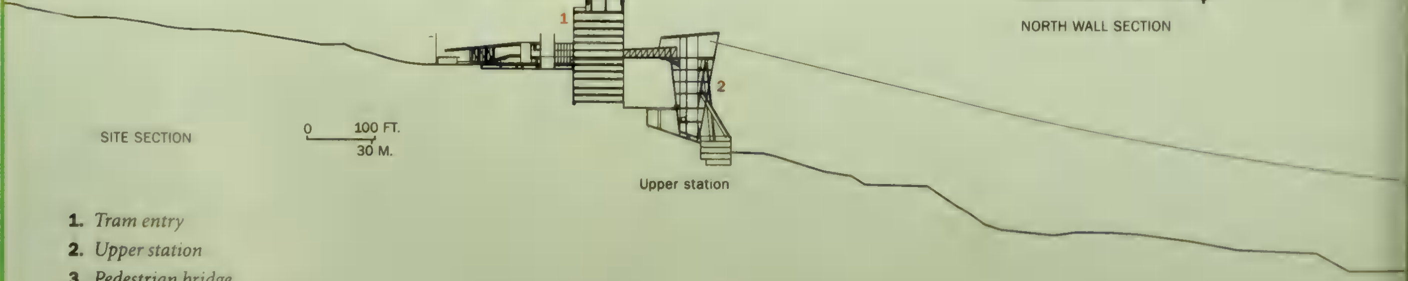


CONTROL ROOM PLAN LEVEL 2



GROUND PLAN LEVEL 1

1. *Control room*
2. *Tram saddles*
3. *Pedestrian roof*
4. *Station platform*
5. *Storm water basin*
6. *Bus bench and bike parking*



SITE SECTION

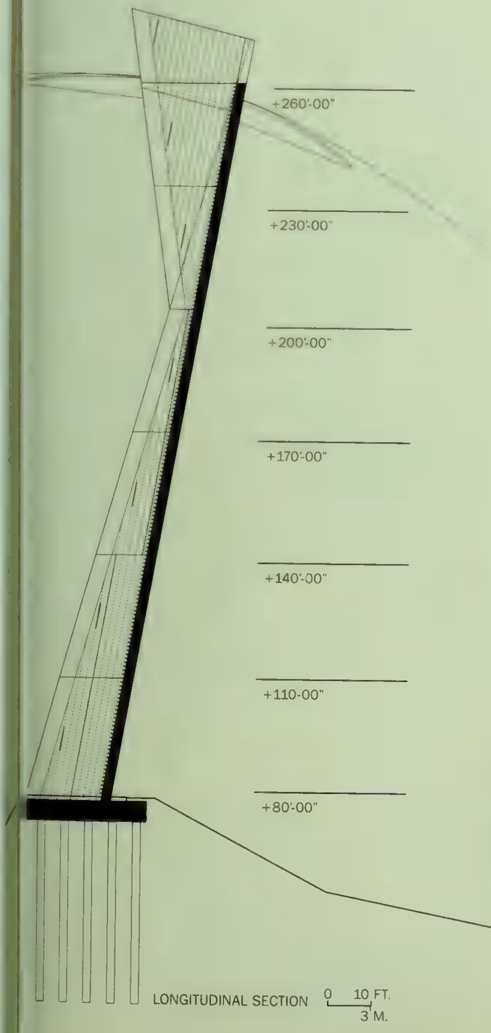
1. *Tram entry*
2. *Upper station*
3. *Pedestrian bridge*
4. *Tram tower*
5. *Lower station*

Minimal architecture to convey complex ideas

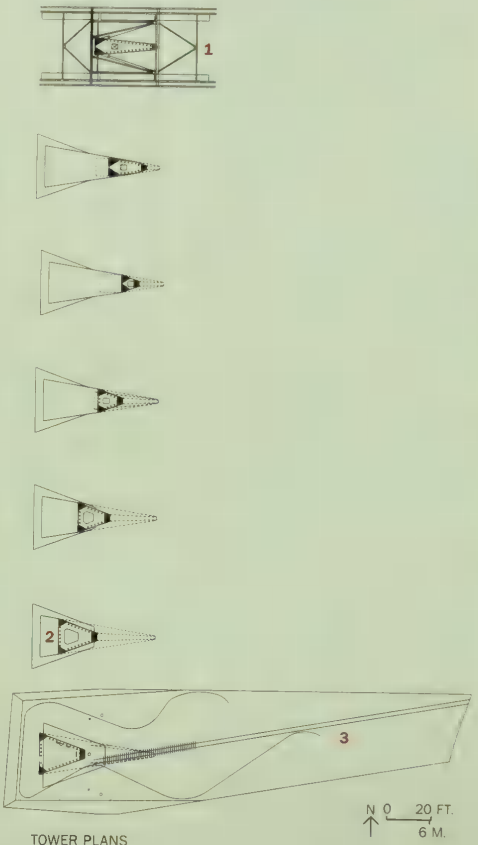
Sarah Graham, AIA, partner in charge: "As the idea for the tram was minimal infrastructure, the drawings intended to represent that idea in their language of reduction. We drew as few lines as possible, which translated into as few layers and materials [redacted] possible."

The section (far left) indicates the main weld joints of the tapering, 199-foot-tall intermediate tower. The plan cuts through the tower (left) indicate the twists it undertakes from its base to top. Precise full-penetration welds on the ⅝-inch plates were required to resist the massive dynamic loads of the tram cars.

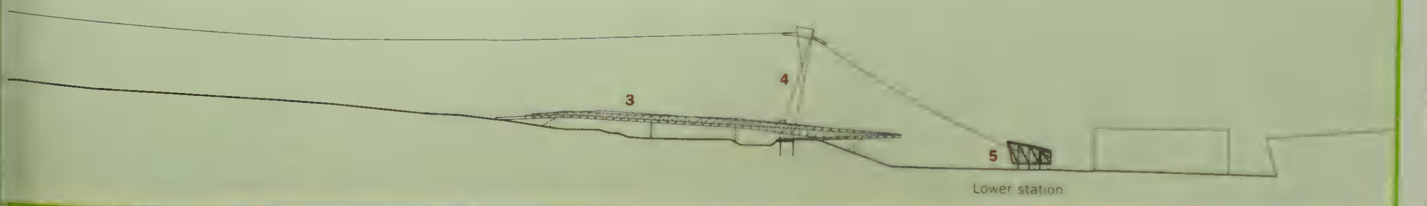
1. *Saddles*
2. *Landing*
3. *Landscape*

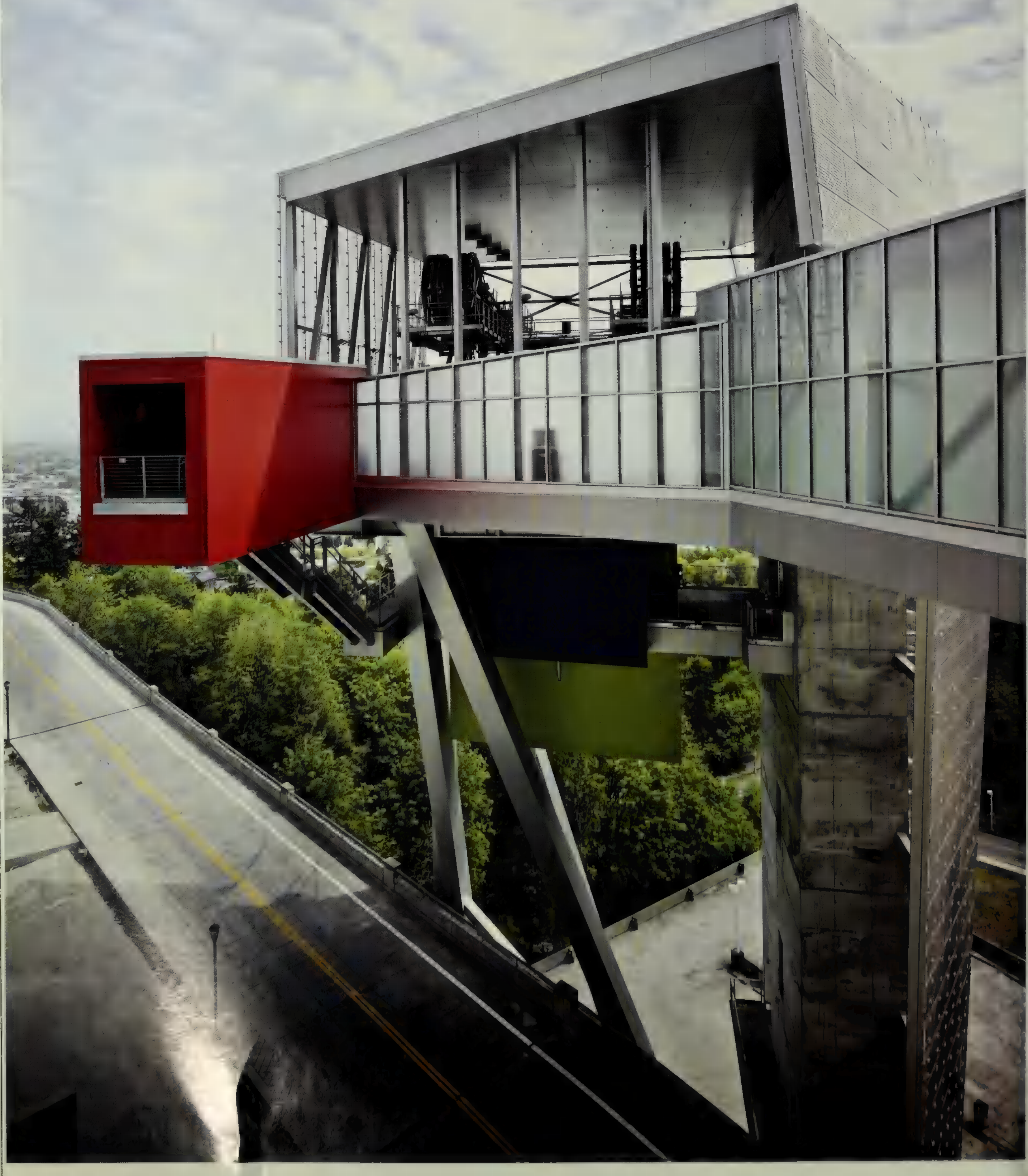


LONGITUDINAL SECTION

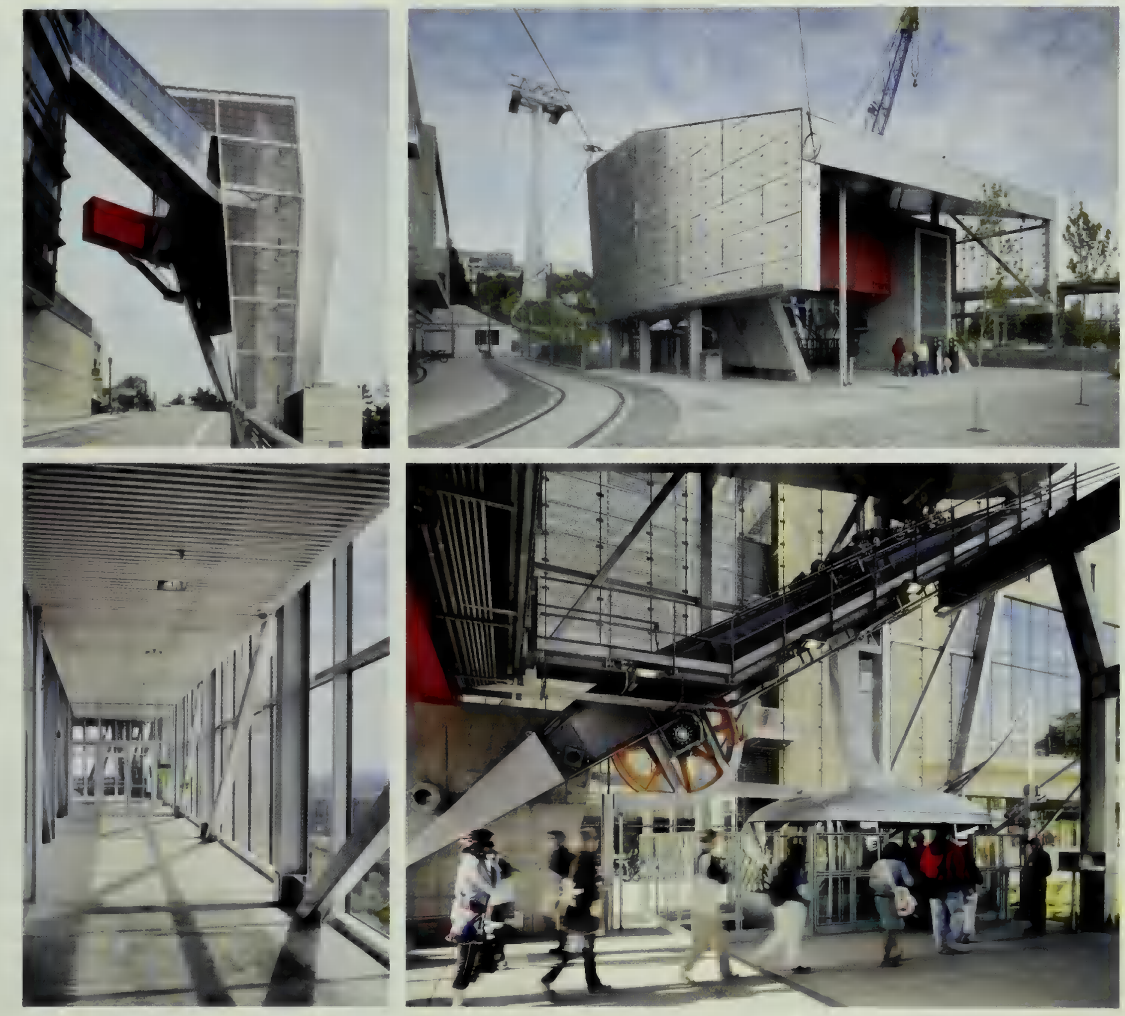


TOWER PLANS





Tram elements include an upper station (top and bottom left and opposite); an intermediate support tower (top right, in the background); a lower station (top and bottom right); and two tram cars that operate in a jig-back configuration. The upper station is an open-air covered platform supported by braced steel legs balancing on a steep site, wedged between hospital buildings. The lower station is an open platform at street level with a covered roof.



for a wood structure, but the team soon learned from the Austrian tram manufacturer Doppelmayr that the tolerances were unforgiving: 1½ nches maximum movement for the upper tower and ¾ inch for the intermediate tower. "It seemed at the far edge of the possible," recalls Sarah Graham, AIA, agps's partner in charge.

The team quickly abandoned wood for steel, but still hoped to etain the original concept's simplicity and lightness. Augmented by a combination concrete stair and elevator core, the upper tower's original criss-crossing pilotis proved adaptable to a simple scheme of two counterbraced A-frames made of four hollow legs fabricated out of 1-inch plate steel, all anchored in a single 10-foot-thick piling cap.

The intermediate tower's need for tortional stability, however, proved tougher to solve. For the design competition, the team imagined a single, cable-stayed pole. The team tried dozens of multilegged chemes, but each lacked either the necessary rigidity or the elegance equired of a future city icon. "On any project with architecture with a capital *A*," points out structural engineer Steve Ratchye, then of Arup, now with Thornton Tomasetti, "you try many things that lead to a lot of dead ends." Graham finally switched her strategy, she says, to "working he forces" with hollow steel—a single, tapering, bending, hollow tower culpted out of ¾-inch steel plates. Though it soars upward with the grace of a Brancusi bird, the tower is all business: The 10 percent vertical tilt better counters the cable loads and the carefully welded, tapering, trapezoidal cross section calms wind vibrations in a manner known as "vortex shedding."

Graham describes the tram's design as "all engineering." That made the aesthetic discoveries—and debates—all the more fun, in Graham's words. Budget cuts, for instance, nixed photovoltaic cells, glass, and polycarbonate for the tram stations' windscreens. So, working with facade engineering specialists Dewhurst MacFarlane and Partners of New York, Graham switched to the coarsest available expanded-aluminum mesh. This first-ever application of the material as cladding required extensive wind testing. The result blankets the muscular, no-nonsense docks in ethereal shadows and shimmering moiré patterns.

The widest departures from the arduous form-follows-engineering design are the tram cars. Budget required the team to use Doppelmayr's stock, safety-code-approved frame design. But for the outer skin, Doppelmayr brought two former Bugatti sportscar craftsmen out of retirement to hand-hammer a curvilinear shape. The result isn't the otherworldly bubbles that agps/Arup first proposed. It's better: a simple, classic design that adds just the right flourish to the poetic minimalism of this unprecedented transportation project. ■

For sources, see page 132.

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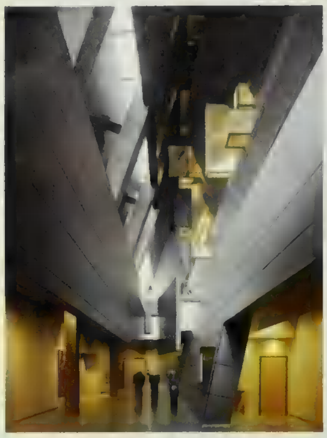


U.S. FEDERAL BUILDING

San Francisco

(page 96)

Sources

Curtain wall: *Permasteelisa Cladding Technologies (aluminum); T&M Manufacturing/Permasteelisa (perforated-steel panels)*

Glazing: *Viracon (exterior); Old Castle (interior)*

Paneling: *Swisspearl (fiber-reinforced cement); 9-Wood (perforated maple)*

Surfacing: *Perfect Polish (concrete floors); Ecofloor (rubberized); Armstrong World Industries (linoleum)*

Cabinetwork: *ISEC*

Roofing: *Tremco*

Lighting: *Zumtobel (pendants, downlights); Lighting Services (lantern fixtures); Arrow (neon artwork)*

Paints: *Tiger Drylac Powdercoating (interior stair and guardrails); ICI (wall paints)*

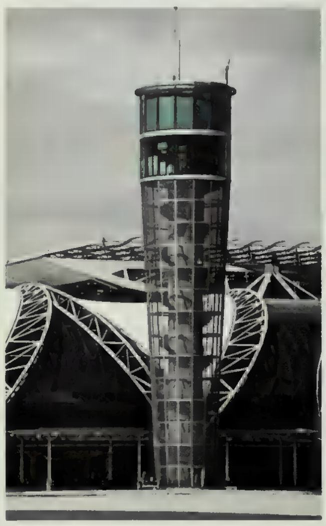
Office furniture: *Herman Miller*

Wall coverings: *Impact Imaging (custom-printed panels)*

Ceilings: *Armstrong World Industries (acoustical panels, suspension grid)*

Carpet: *Interface*

Conveyance: *Mid-American Elevator*



SUVARNABHUMI AIRPORT

Bangkok

(page 122)

Sources

Curtain wall: *Permasteelisa/KAMA*

Concrete: *Ritta; Italian-Thai Development*

Roofing: *B&O Hightex (fabric membrane)*

Glazing: *Viracon; Thai-German Specialty Glass (glass); Chadwick Airport Consortium (skylights)*

Doors: *NABCO (entrances); Ceco (metal doors)*

Hardware: *Schlage*

Interior finishes: *CCM Airport Equipment (casework, signage); TOA-Chugoku (paints, stains)*

Flooring: *Marblex (Terrazzo tile); Lindner (raised flooring)*

Fixed seating: *Akaba*

Conveyance: *KONE (elevators); Mitsubishi (escalators); Hitachi (moving walkways)*

Baggage handling system: *Kawasaki*

Stainless steel: *Thapanin (planks and stairs)*

LUFTHANSA AVIATION CENTER

Frankfurt

(page 108)

Sources

Curtain wall: *Josef Gartner*

Metal lining: *Schmid (ceiling)*

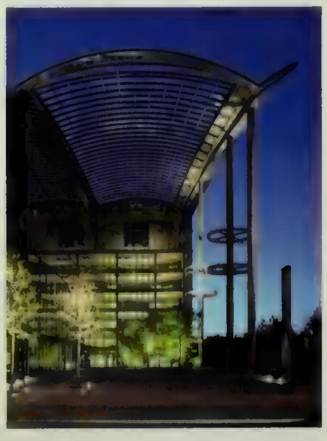
Furniture: *Vitra*

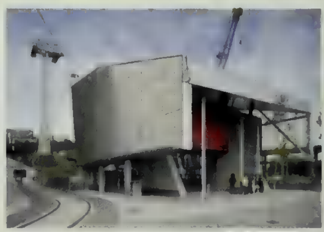
Lighting: *ERCO Leuchten*

Technology: *Gira Giersiepen (room-specific control units)*

Washbasins: *Pfeiffer & Söhne*

Grips/fittings: *Franz Schneider Brakel*





PORTLAND AERIAL TRAM

Portland

(page 116)

Sources

Exterior coating: *Wasser; Tnemec*

Exterior cladding: *James Hardi (concrete fiber board); Dramex (aluminum panels); AIG (aluminum fastening)*

Elevator: *Schindler Elevators*

Waterproofing: *American Hydrotech*

Paint: *Sherwin Williams*

Glass: *Oldcastle Glass*

Storefront system: *Kawneer*

Louvers: *United Enertech*

Light fixtures: *Bega; Omeaglux; Prudential; Lithonia*

Flood barrier: *Presray*

Gypsum sheathing: *GP*

Structural steel fabrication: *Thompson Metal Fabrications*

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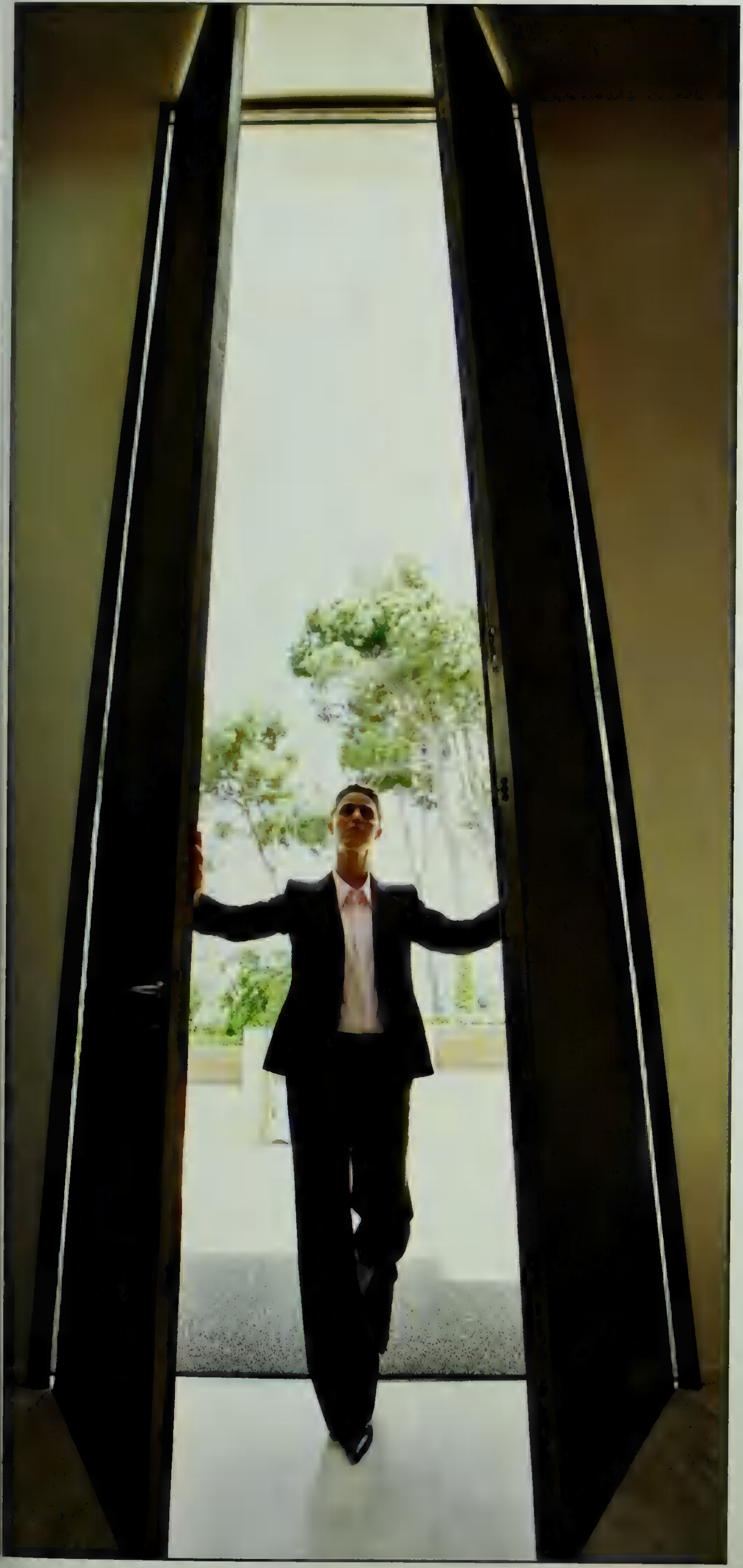

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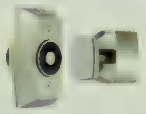

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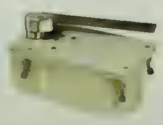
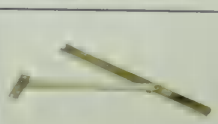
Pivots and Pivot Sets



Floor Closers



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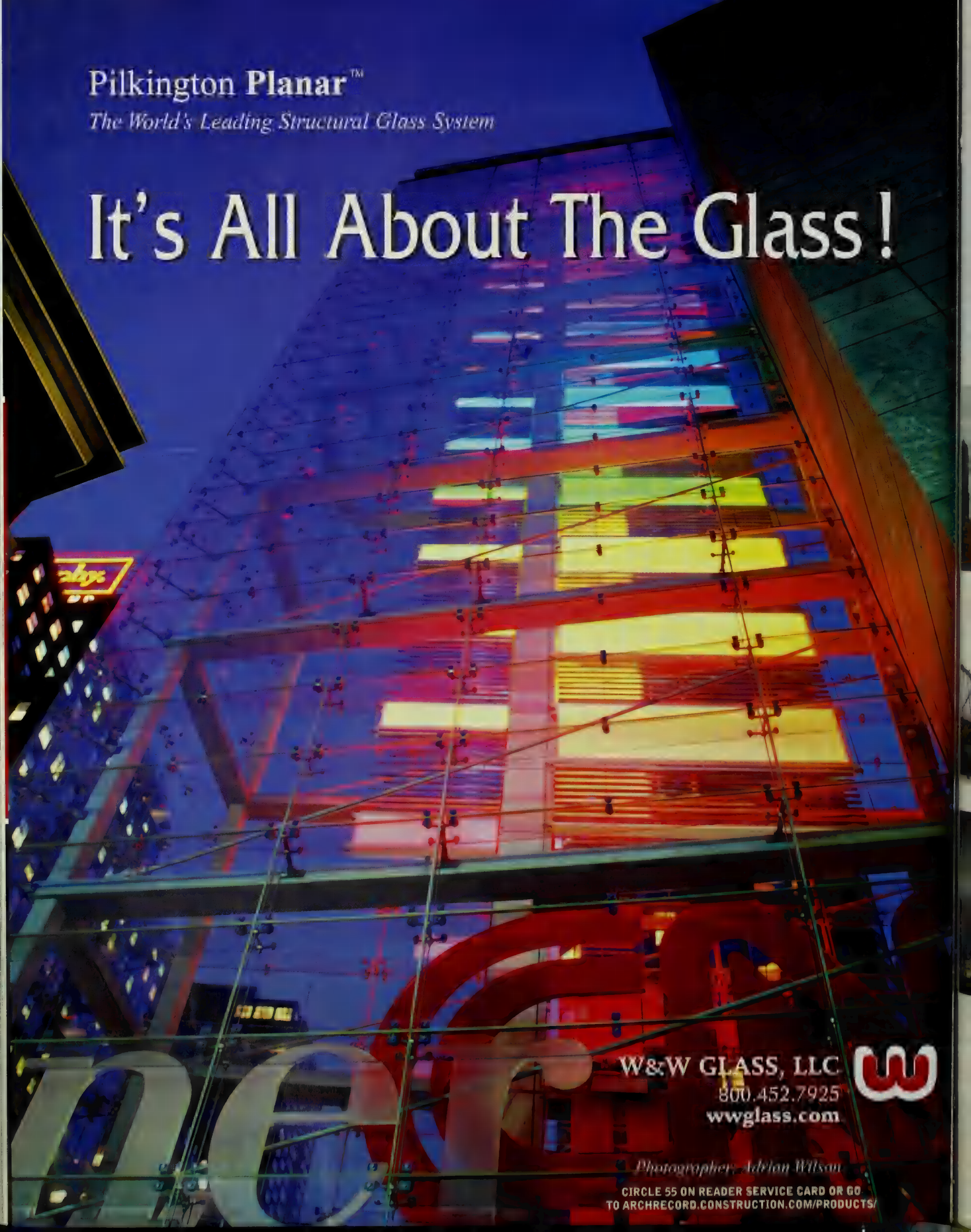

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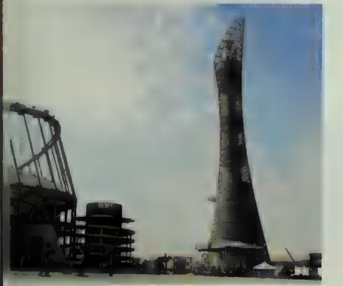
Topped/Tapped Out

“If you had to cut costs, why didn’t you cut floors instead of corners?” —Paul Newman, as architect Doug Roberts in The *Towering Inferno.*

7 WORLD TRADE CENTER

New York, New York

In a dry run for its forthcoming Freedom Tower, Skidmore, Owings & Merrill design a jewel-like tall building that is already rewriting the book on safety.



SPORTS CITY TOWER

Doha, Qatar, United Arab Emirates

AREP and Hadi Simaan bestow an instant icon on a rapidly developing city, bolstering civic pride during the Asian Games.

MONTEVIDEO TOWER

Rotterdam, the Netherlands

The exterior cladding on Mecanoo’s multifaceted residential tower shifts materials to indicate a variety of dwelling situations for a new building on a revitalized postindustrial pier.

By Russell Fortmeyer

The skyscraper has had more comebacks than Cher. From its humble, naive beginnings in Chicago after the fire of 1871; its idealistic representation in early European Modernism; its apex as the glam symbol of American corporate eminence; its bimbo phase in Postmodernism; its more recent dalliance with high-tech engineering; and culminating with its supposed demise on September 11, 2001, the skyscraper is one helluva contender.

Every time we think we’ve solved the typology, realized its total fulfillment, and built the freshest example, the skyscraper struts out in yet another tectonic version of a Bob Mackie gown—dripping in sequins, devoid of meaning, pure fabulousness. And we can’t turn away.

“The industry is able to build these unusual forms, but we haven’t got our minds around what that means,” says David Scott, a structural engineer in Arup’s New York office and the current chair of the Council on Tall Buildings and Urban Habitat. “People are being too flippant.” Scott worries that although tall buildings can address rapid global urbanization, enough architects and engineers aren’t considering the attendant environmental context in terms of ecological impact. Too often, he says, architects apply sustainable concepts to the existing skyscraper typology, without questioning the typology itself.

Enter the dazzle. We are awash in new skyscrapers, but the typology’s reenergized career banks on one of two design strategies: go really tall or technologically dazzle. Think of it as choosing between Gothic and Baroque, minus the cultural baggage. We can always go tall, though how tall remains an open question. Dazzle is much harder to locate—be it techno gimmickry, stylistic parlor tricks, or a trendy patina of sustainability. The proposals for the World Trade Center (WTC) site were one long, dazzling

FXFOWLE’s India Tower will include many sustainable features.

audition after another for a comeback tour that never happened. Regardless, at any given moment, we can find a skyscraper (or two) to step forward as the repository of our collective wish fulfillment: the Burj Dubai and Beijing's CCTV Tower.

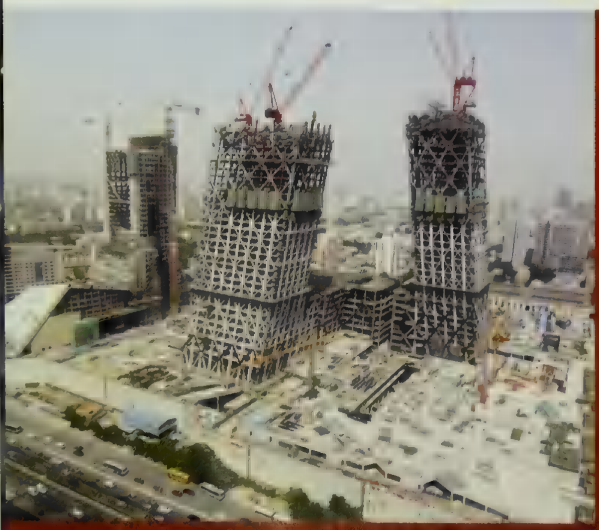
Structural engineer Bill Baker in the Chicago office of Skidmore, Owings & Merrill (SOM) claims the Burj will be the tallest building in the world once completed in 2008 (around 160 floors rising over 2,600 feet). And Arup's Cecil Balmond, the lead structural engineer on Rem Koolhaas's and the Office for Metropolitan Architecture's CCTV, also to be completed in 2008, has called that building the most structurally complicated he's ever designed. Tall or dazzling, both towers are icon-making tools, visual propaganda for political states in the throes of expansion. Be careful what you wish for.

The Burj and CCTV also willfully rebuke America's assumptions of skyscraper preeminence, despite the fact that both projects—like so many others today—represent global design teams with significant American contributions. The computer doesn't care where you are, and so-called building information models (BIM), heartily embraced by firms such as SOM, Arup, KPF, Buro Happold, and FXFOWLE, promise to further simplify and concretize the collaborative design process. But that is a problem internal to architecture and engineering, entirely solvable through the market (just ask Autodesk and Bentley), whereas getting the tall or dazzling project built remains at the mercy of so many bureaucrats and businessmen.

Market and regulatory demands have become so perilous for skyscraper interests in the States—epitomized by the flawed process at the WTC site—that many domestic observers and fans of the typology have given up expecting anything more than mediocrity, or what we could start calling the "Miami Effect." Hence, the media has a tendency to skirt past the tiny subject of democracy—not to mention safe job-site conditions and fair employment regulations—when raving about the "just-get-it-done" spectacles of Dubai, Abu Dhabi, Shanghai, Beijing, and so on. Conversely, if architecture needs Communism to realize a project like CCTV, what exactly did it require to accomplish what we are developing at Ground Zero?

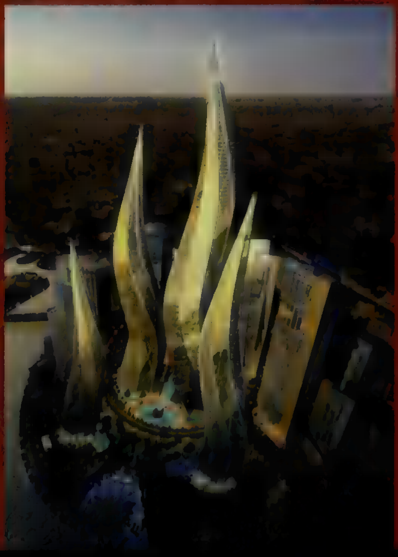
Many eyes will stay trained on SOM's developing Pearl River Tower in Guangzhou, China, the first "net" zero-carbon skyscraper designed to produce its own energy. The project represents the kind of optimism (and PR maneuver) that used to define American skyscrapers—neither the firm's Burj nor its Freedom Tower at the WTC can compare to the performance-based innovations planned for Pearl River. There are still many in the design world, however, who doubt the project, since true building performance remains somewhat of a guessing game, especially for skyscrapers. It's telling that there are few, perhaps less than a dozen, proposed tall buildings in the world designed with the strategies of Pearl River. When there is no precedent, clients get nervous.

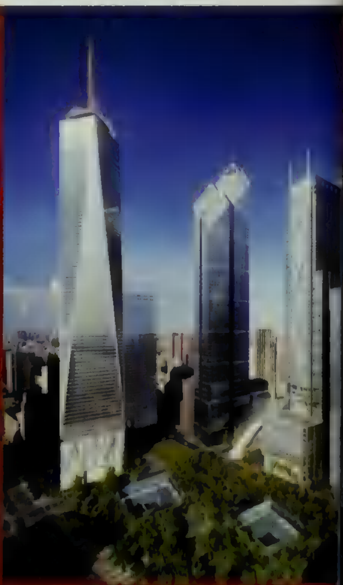
These unresolved issues still linger in the rush to develop a new urban world, where the United Nations estimated in June that more than half the world's population now lives in cities. Given the recent building boom, critics and theorists have written relatively little on the skyscraper, especially outside of the contexts of the WTC and such places as Dubai or Guangzhou. No wonder Koolhaas's *Delirious New York*, which turns 30 years old next year, still reigns as provocative reading in architecture schools. Even Koolhaas builds more than he writes today—and some of his more recent proposals for skyscrapers, like that in Jersey City, certainly don't inspire confidence. In 2002, Ken Yeang published his *Reinventing the Skyscraper, A Vertical Theory of Urban Design*, which lays down a fairly ambitious model of the skyscraper as an environmentally responsible ecosystem, a nonhomogenous collection of programmed and vegetated spaces that theoretically approximates the functions of a city for a globally connected Internet culture. Yeang's writing and conceptual designs have appeal, especially among the green set, but like Koolhaas, the ratio of finished project to unbuilt proposal remains too low to gauge its effects outside of vanity projects. This is, after all, still serious architecture, with



The Office for Metropolitan Architecture's CCTV Tower (above), designed with Arup, lies at the forefront of structural innovation for the skyscraper.

The four towers of TVS & Associates' proposed Dubai Towers (below) will anchor the Lagoons development. The largest tower tops out at 97 floors.





The proposed development at the World Trade Center site in New York (above, from left to right): SOM's Freedom Tower and towers by Norman Foster, Richard Rogers, and Fumihiko Maki.

a capital *A*, not your everyday Shanghai business park. As Yeang said at a recent lecture in New York, "Low-energy design is a lifestyle issue." And not everyone can afford lifestyle.

While we don't lack a multitude of pretender firms to the skyscraper throne of invention, Koolhaas and Yeang remain, for better or worse, among the more credible voices. Koolhaas's CCTV elegantly achieves the programmatic complexity of which Yeang writes, while avoiding the ecological dress (i.e., hanging gardens, sky terraces) and multiple structural systems as proof-of-concept of Yeang's proposed Elephant and Castle Eco-Towers in London. But both architects participate in the cult of the skyscraper with us since early Modernism, granting the typology significance in urban design that it will never wholly realize (Koolhaas does it ironically, knowing the type is dead; Yeang believes his storyline). We used to call this sort of architecture utopian—we put our faith in the unrealizable dream of the skyscraper—but anyone getting caught up in this or that new skyscraper today is at best ignorant, or at worst, in denial.

Critic Cynthia Davidson, in the Spring 2004 issue of *Log*, laments the vacuum of ideas for the skyscraper, referring to 1920s and 1930s New York as evoked in Koolhaas's book as a lost moment before the tall building became a power symbol motivated solely by economics. Is it any surprise that the critical fallout of the disaster of September 11 turns out not to be the demise of the skyscraper, but the revelation of its continued cultural, social, and political value? This is especially true for cities in developing economies.

So, if the reduced form of any skyscraper merely amounts to a symbol of power—whether tall or dazzling—the discussion must then shift to the consideration of who creates or, more important, who pays for the creation of these private/civic symbols—who is, in Davidson's terms, projecting their "power"? This is the lesson of the WTC, in that it exposed, as much as humanly possible given the political circumstances, the machinations that fuel real estate speculation (and its pet, architecture) in today's economy—the private, public, and global forces that act with little concern for the micro-local effects or even the strain on regional infrastructure.

We have always had a tendency to congratulate corporations, or the interests that control them, for building extraordinary skyscrapers, somehow identifying our beliefs in progress and economic success in their appearance on our skylines. The failure of imagination that has stymied the WTC and the politics plaguing other megasites—such as the twin Frank Gehry projects of Atlantic Yards in Brooklyn or Grand Avenue in Los Angeles—have only temporarily obscured the fact that we remain enamored of skyscrapers. So much so, we have been breathlessly converting obsolete models into residential use in nearly every American city.

Our selective memory enables us to overlook the relatively quick obsolescence of earlier skyscrapers, since so much of what tall buildings represent gets bound up in our desire to see them as continually new and built upon a typological tradition of impressive design vanguard. Could we consider that eventually even Renzo Piano's New York Times tower will be converted to live/work lofts, that its super-modern sustainable features, open floor plates, and bizarre ceramic-rod shading devices will come to be seen as untenable in a shifting commercial economic landscape? That architecture (and its media) masks this question in everyday practice suggests that the imminent answer will surprise many of us.

For now, we consider three contemporary examples of how the skyscraper can dazzle. SOM's impeccable, if straightforward, 7 World Trade Center, with its masterful play of light and transparency, is the first structure to rise on the site of the September 11 disaster. Mecanoo's Montevideo Tower, in Rotterdam, anchors a waterfront revitalization with a vertical mass broken by differentiated curtain-wall finishes, setbacks, and dizzying cantilevers. AREP's Sports City Tower, in Doha, Qatar, updates the observation tower with some added programmatic complexity hiding behind a steel structural wrapping. If none of these projects are quite the skyscraper's comeback, they steadfastly deliver as an opening act. ■

At 2,000 feet, Santiago Calatrava's proposed Chicago Spire (below) would be the tallest building in the United States.

Arquitectonica's Lulu Island tower (above) will anchor one of the largest developments on an artificial island off of Abu Dhabi.

SOM's Burj Dubai (below), at more than 2,600 feet, will be the tallest building in the world. Other developers plan to go taller yet, though those projects remain a secret.

One: 7 WORLD TRADE CENTER

New York City

Skidmore, Owings & Merrill have dropped a 1.7-million-square-foot hint for the buildings we can expect at a renewed World Trade Center.

By Russell Fortmeyer

Architect: *Skidmore, Owings & Merrill—David Childs, FAIA, design partner; T.J. Gottesdiener, FAIA, managing partner; Carl Galioto, AIA, technical partner; Ken Lewis, project manager; Peter Ruggiero, AIA, senior designer; Christopher Cooper, AIA, senior designer; Nicholas Holt, AIA, senior technical coordinator*
Client: *Silverstein Properties*
Consultants: *WSP Cantor Seinuk (structural); Jaros Baum & Bolles (m/e/p, vertical transportation, sustainability); Philip Habib & Associates (civil); Ken Smith Landscape Architects; Cline Bettridge Bernstein Lighting Design; Cerami & Associates (acoustics); Pentagram (signage); Mueser Rutledge Consulting Engineers (geotechnical); Ducibella Venter & Santore (security); James Carpenter Design Associates (artist); Jenny Holzer (artist)*
Construction manager: *Tishman Construction Corporation*

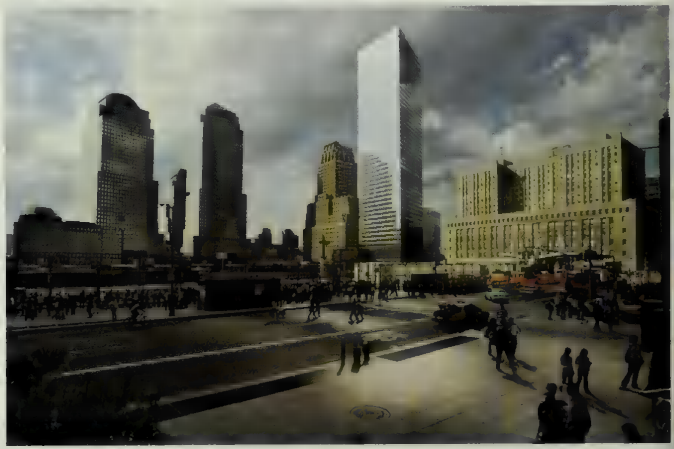
Size: *1.7 million square feet*
Cost: *Withheld*
Completion date: *May 2006*

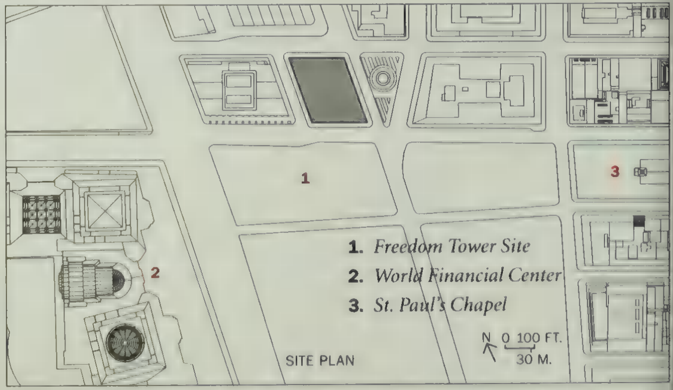
Sources
Glass: *Viracon*
Screen wall LEDs: *LED Effects*
Tower crown lighting: *Kim Lighting*

ONLINE: Rate this project and access additional sources at **architecturalrecord.com/bts/**.

There has been so much written on what should, could, or would be built at the site of New York's devastated World Trade Center, the bound copies might likely fill the only tower that has actually been constructed: Skidmore, Owings & Merrill's 7 World Trade Center, or 7 WTC.

Not since the rebuilding in the 1990s of Berlin's Potsdamer Platz has there been a comparable undertaking in architecture: What do you build on a ruined site that occupies such a special place in the political, national, and cultural imagination of a people? If you're David Childs, FAIA—perhaps SOM's best-known design architect of the moment—you begin by building a 52-story skyscraper as a test, of sorts, of technology, aesthetics, collaboration—and will—before embarking on the adjacent 102-story Freedom Tower currently under construction.

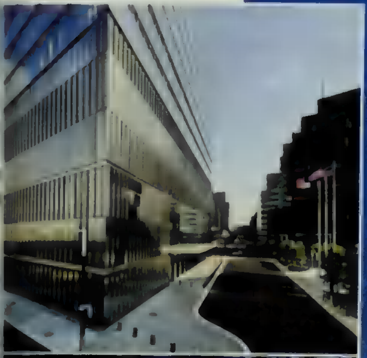


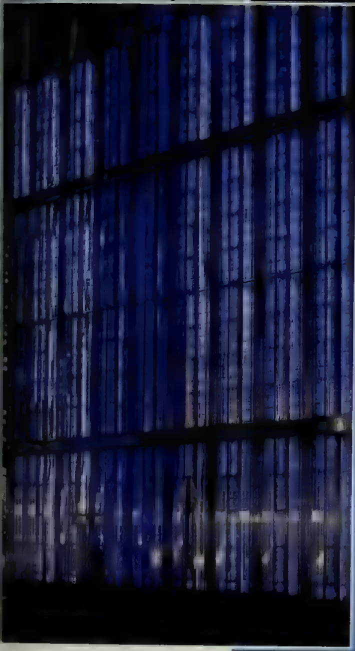


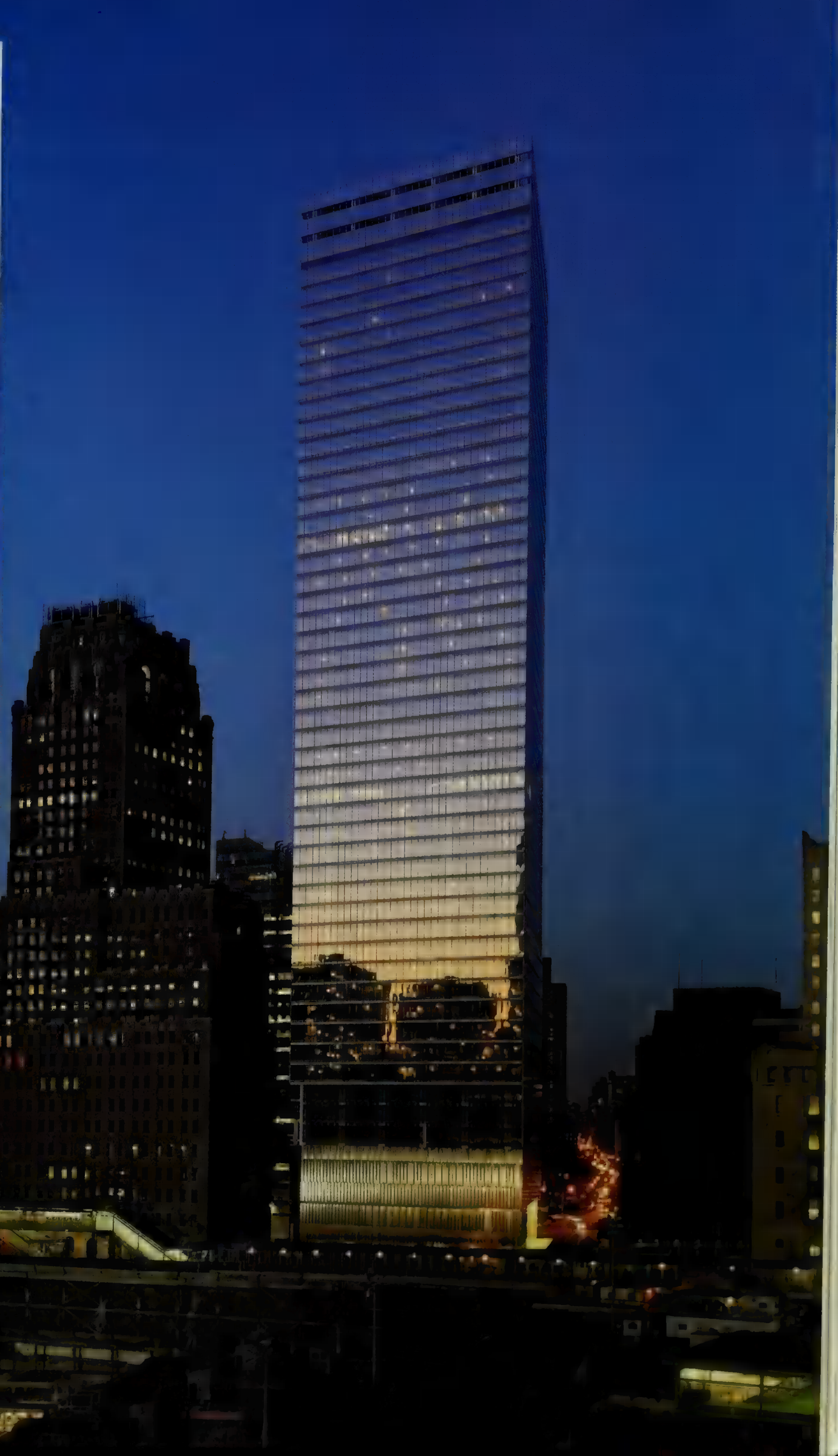
Program

If you've opened a newspaper in the past six years, you know that Larry Silverstein is the developer of the WTC site, having leased the property from the Port Authority of New York and New Jersey weeks before 9/11. But his involvement in the site predates this. In 1987, Silverstein built the original 7 WTC, designed by Emery Roth & Sons, on top of a 1967 Con Edison substation serving Lower Manhattan, but you would never have known that, since the original tower connected directly to the WTC's elevated podium. Almost immediately after the September 11 disaster—in which the existing 7 WTC was left unoccupied, to burn and collapse, while emergency personnel focused on saving lives—Silverstein brought the original building's design team together with a new architect, SOM, to rethink the site so Con Ed could rebuild the substation.

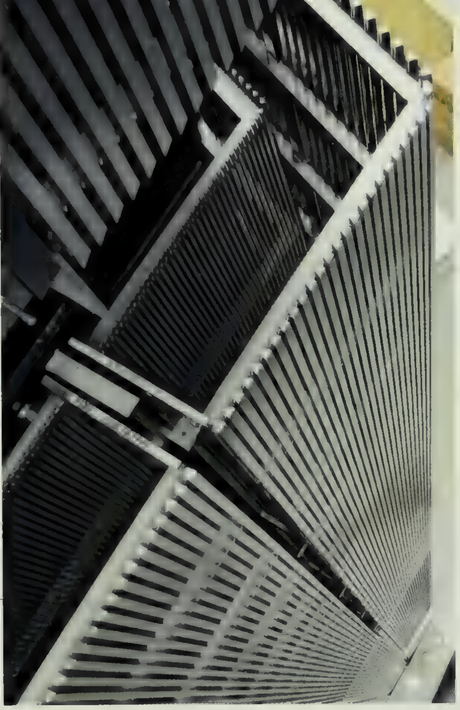
Childs says he quickly realized the project could reconnect Lower Manhattan and the WTC site north to the city by opening up Greenwich Street, which the original 7 WTC had blocked. "It was important visually, urbanistically, and historically to put that line back, since Greenwich is the original edge of the Hudson River,"



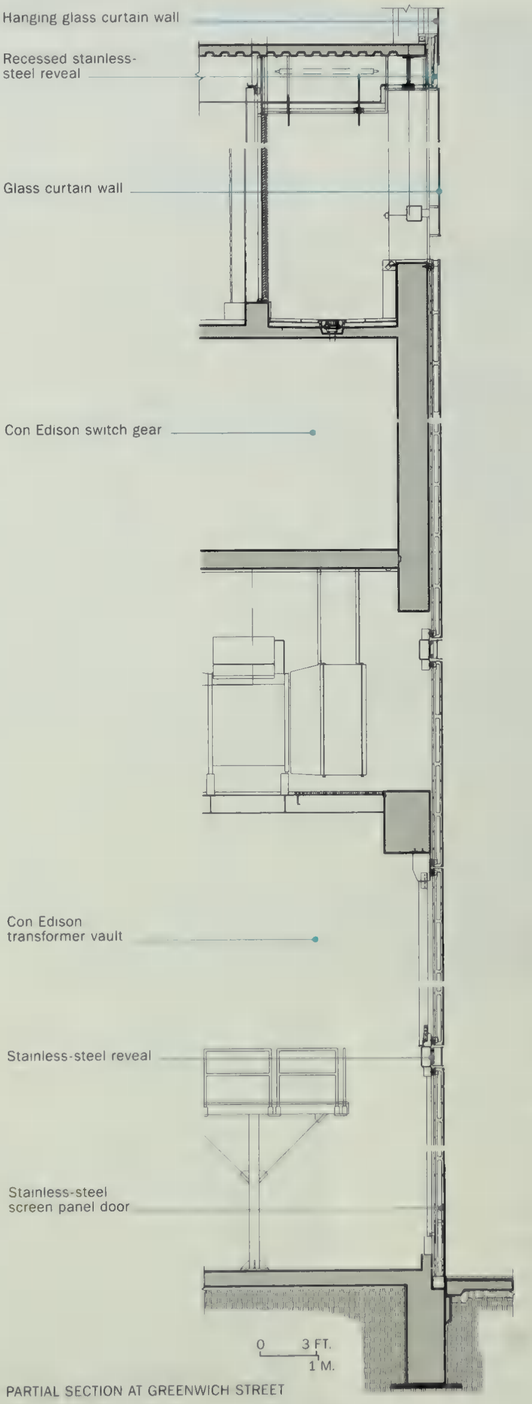




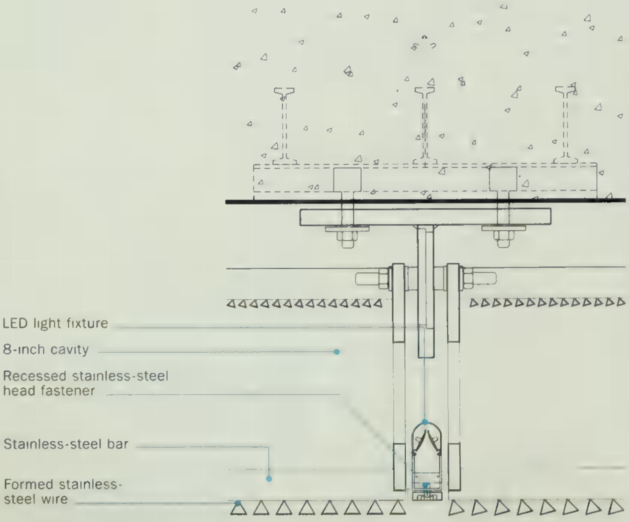
At 741 feet high, 7 WTC currently dominates the WTC site (opposite, top). The building's parallelogram footprint, on the site's western half, allows views north along Greenwich Street (right). At night, a programmed display of blue and white LEDs turns the base into a shifting, luminous surface (above). Varying stainless-steel wires (top) create daytime moiré patterns.



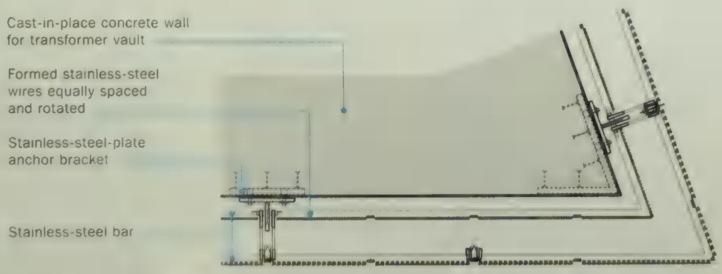
James Carpenter, the artist who collaborated with SOM to design the curtain walls (left), says the base was fabricated by a mining-engineering company that managed to keep costs down. The outer band of wires are 50 percent open, which allows for many visual effects. The Ken Smith–designed plaza (below right) includes benches, sweetgum trees, and space for rotating art installations, such as Jeff Koons's *Balloon Flower*, from Silverstein's collection.


Hanging glass curtain wall
Recessed stainless-steel reveal
Glass curtain wall
Con Edison switch gear
Con Edison transformer vault
Stainless-steel reveal
Stainless-steel screen panel door
0 3 FT.
1 M.

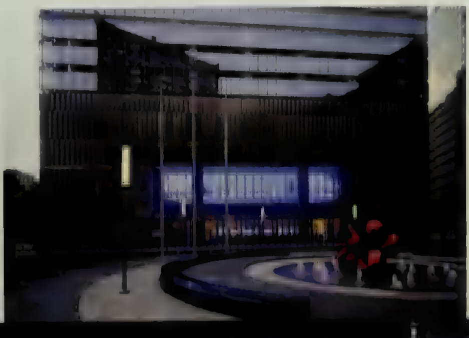
PARTIAL SECTION AT GREENWICH STREET


LED light fixture
8-inch cavity
Recessed stainless-steel head fastener
Stainless-steel bar
Formed stainless-steel wire

DETAIL AT PODIUM WALL WIRES


Cast-in-place concrete wall for transformer vault
Formed stainless-steel wires equally spaced and rotated
Stainless-steel-plate anchor bracket
Stainless-steel bar

ACUTE CORNER DETAIL AT EXTERIOR PODIUM WALL



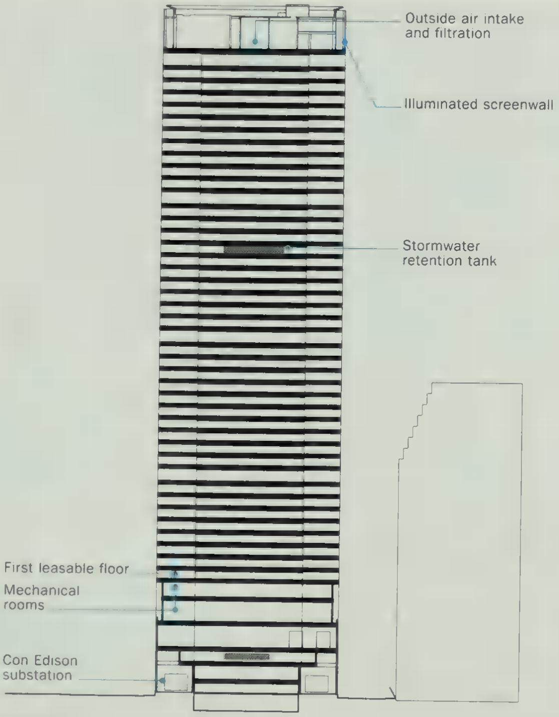
Childs says. It took some convincing for Silverstein, since it meant a reduced building footprint and a final size, even at 1.7 million square feet, that represents less space than that allowed by zoning. Furthermore, the substation, as well as mechanical equipment, occupies the first 10 floors, so leasable space fills only 42 floors. This base, which needed to be well ventilated and accessible, posed a serious challenge for architects of a speculative core-and-shell office building.

Solution

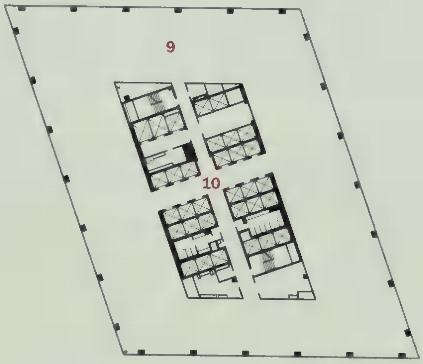
SOM made two key decisions that ensured the tower's success: the aforementioned restricted footprint, with the building on the site's west side, leaving space for a public plaza between Greenwich and West Broadway, and the collaboration with some celebrated names—James Carpenter, the light and glass artist, and Permasteelisa, the facade manufacturer—to develop the multifaceted curtain wall.

7 WTC's curtain wall has four surface articulations—the stainless-steel base at the substation, a ventilated glass curtain wall for mechanical rooms, 42 stories of clear glass curtain wall, and an illuminated crown similar to what SOM designed for its 2003 Time Warner Center. With Carpenter, SOM designed the base as a two-layer wall of stainless-steel, triangular-section wires, equally spaced and rotated along a support armature ike a sleek, Minimalist picket fence. In daytime, sunlight bathes this facade, creating moiré patterns that activate the building along the sidewalk. Farther up, the glass curtain wall appears to dangle from the building, as a recessed stainless-steel spandrel reflects light to the backside of he glass overhang (see the top of he wall section on the opposite page). At night, LEDs installed behind small columns reflect on the interior wire layer and transform the building.

Less apparent in the building are the structural and safety innovations that have already affected skyscraper design. Silvian Marcus, the project's structural engineer and the C.E.O. of Cantor Seinuk, designed

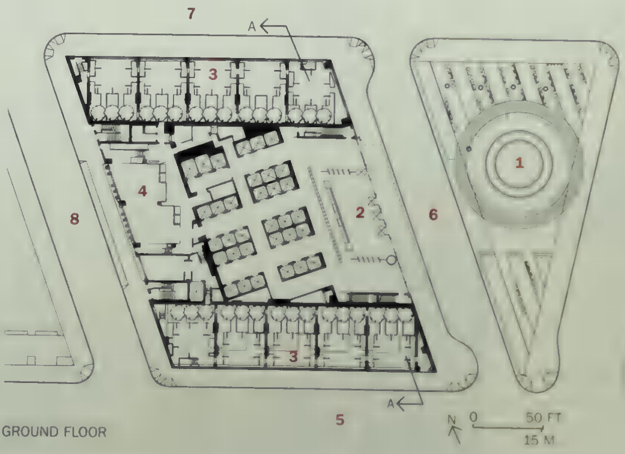


SECTION A-A

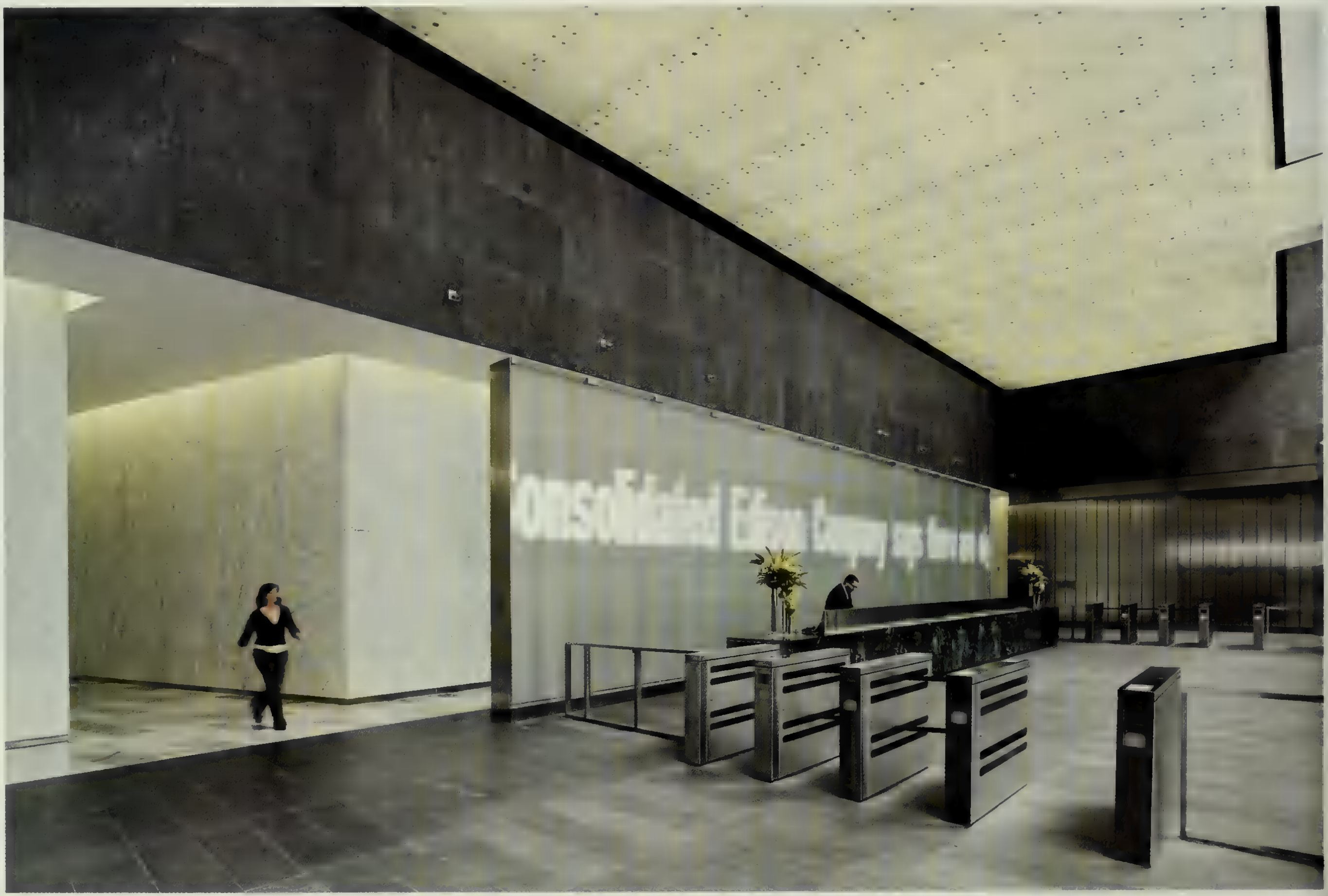


TYPICAL FLOOR

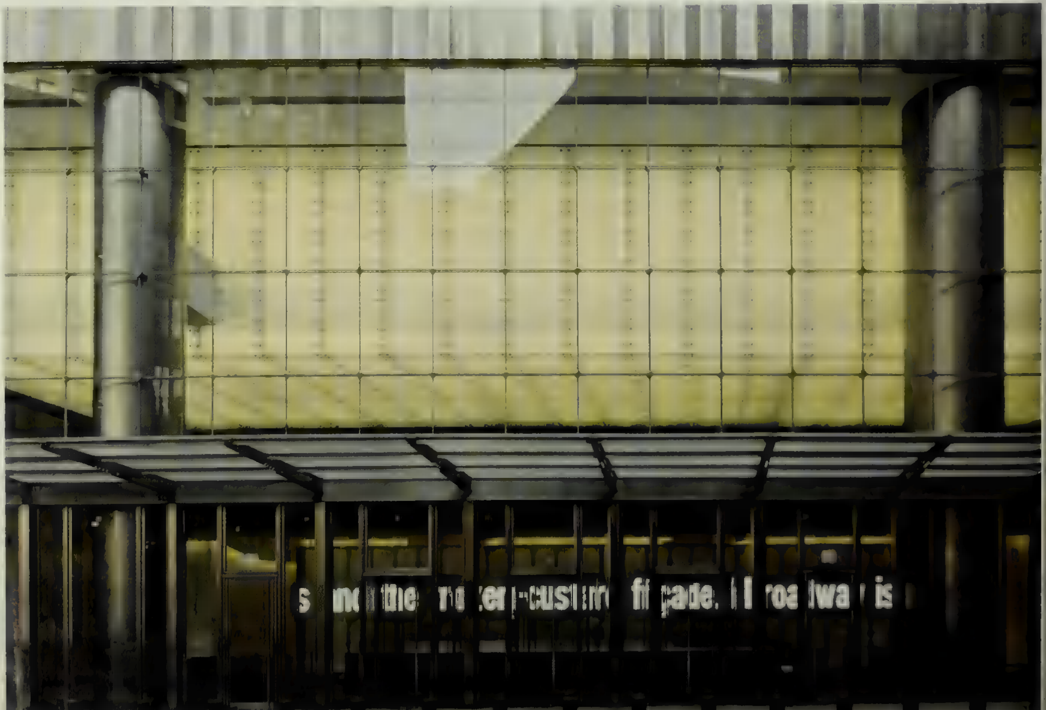
1. *Plaza*
2. *Lobby*
3. *Con Edison substation*
4. *Loading dock*
5. *Vesey Street*
6. *Greenwich Street*
7. *Barclay Street*
8. *Washington Street*
9. *Typical column-free floor plate*
10. *Robust core*



GROUND FLOOR



The Jenny Holzer LED installation (above) cantilevers 14 feet from the floor on a structure designed by Bill Baker, of SOM's Chicago office. The sumptuous lobby, which belies the fact that 7 WTC is a LEED Gold–rated core-and-shell office building (the first in New York), is finished in white and gray marble. A hanging glass wall (right), glass canopy, and an illuminated glass ceiling outfitted with red, white, and blue dimmable T5 fluorescent lamps fosters an atmosphere of smooth luminosity.



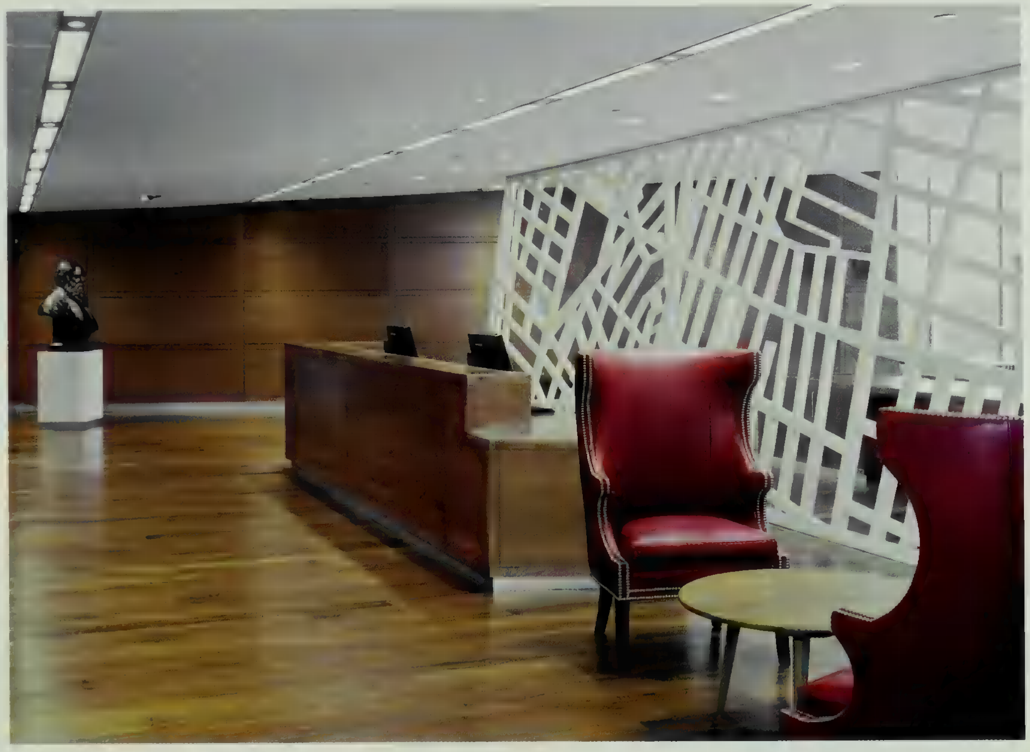
the original 7 WTC as a total steel structure, but this time around he developed a robust concrete core and a perimeter of redundant steel columns—to address progressive collapse concerns—that leaves the interior completely open.

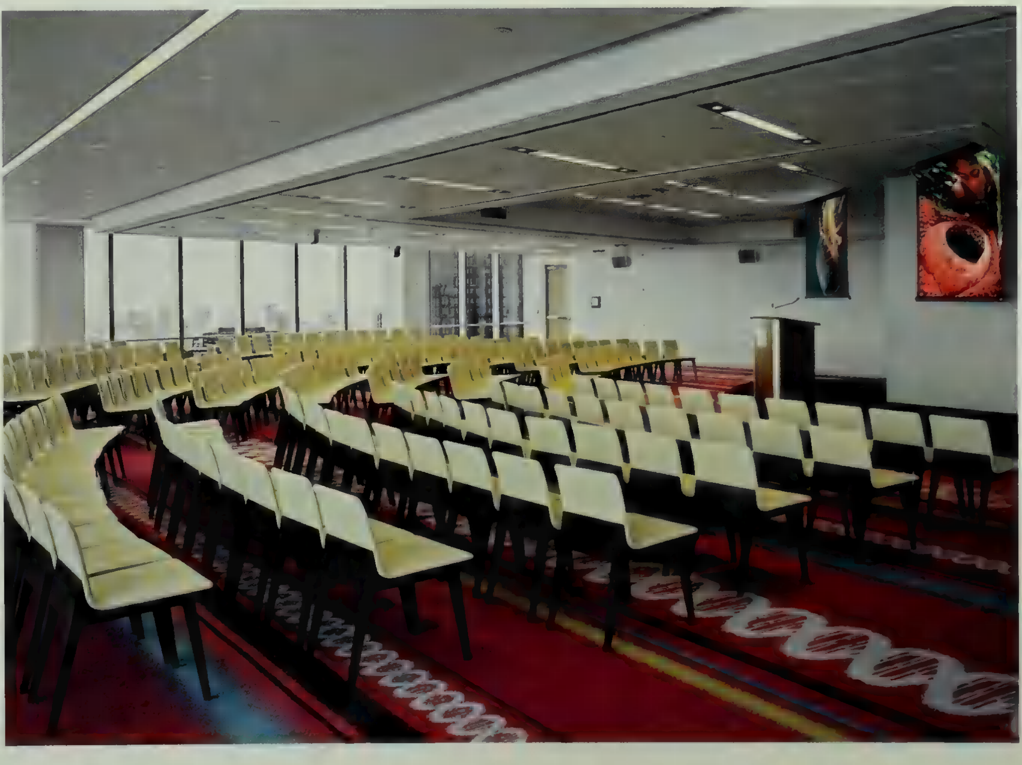
Although coordinating work between two separate unions—for concrete and steel—makes New York projects notoriously difficult, Marcus says the core approach enhances safety. The perimeter columns tie back to the core with what he calls "outriggers," trusslike devices that free the columns to only support gravity loads, thereby reducing their size and making the failure of any given column less important to overall structural integrity. Cantor Seinuk plans to use this approach for its work at Freedom Tower and the other WTC skyscrapers.

In large part due to 7 WTC, the International Code Council recently added the requirement of an additional exit stair for buildings over 420 feet high. The stairs at 7 WTC, brushed with intumescent paint, are already 20 percent wider than code requirements and exit directly to the street, avoiding the lobby.

Commentary

No other Manhattan tower of recent vintage comes close to the mesmerizing surface effects of 7 WTC, from its startling base through its variegated reach to the sky. In terms of sheer luminous exuberance, only Norman Foster's 2006 Hearst Tower compares, but it's so cut off from the street to be merely slight and chooses to reserve its best space—the atrium—for employees. At 7 WTC, the ground-level urban gestures—including a dramatic Jenny Holzer LED installation projecting phrases through the lobby's curtain wall and nto the plaza designed by landscape architect Ken Smith—are generous, considering Silverstein could have illed the lot with structure. While his project hasn't relieved Childs and company from continued public criticism of Freedom Tower, it has certainly added a significant artifact o Manhattan's unparalleled collecion of skyscrapers. ■





H3 Hardy Collaboration Architecture designed a new home for the New York Academy of Sciences on the 40th floor of 7 WTC. The space, which opened in October 2006, takes its cues from the academy's interests, including oversize photographs of flowers that line an office corridor that slices north–south through the floor. The flowers were produced in cooperation with graphic designers 2x4. The screen wall in the lobby (top) illustrates the New York street grid, indicating the academy's previous locations. The lecture hall (above) affords enviable panoramic views of the city.

Two: SPORTS CITY TOWER

Doha, Qatar, United Arab Emirates

AREP and Hadi Simaan bestow an icon, with drama and engineering finesse, on a rapidly developing city in the United Arab Emirates.

By Sam Lubell

Architect: *AREP, with Hadi Simaan—Etienne Tricaud, partner in charge; Bruno Sarret, project architect; Ali Dehbonei, on-site architect; Eric Dussiot; Marie-Odile Bosc; Alan Murray; Cyril Hugon; Ana Paula Vaz Correa; Stephane Mairesse; Hadi Simaan Architects—Hadi Simaan, principal*
Client: *State of Qatar*
Consultants: *Arup (structural, m/e/p, acoustics, fire, wind and vibration analysis); ECART (interiors); Kevan Shaw Lighting Design (lighting, LED programming); Gilles Drossart (renderings)*
General contractor: *BESIX with MIDMAC*

Size: *430,556 square feet*
Cost: *$175 million*
Completion date: *May 2007*

Sources
Structural system: *Arcelor*
Glass and skylights: *Saint Gobain*
LEDs: *Philips Lumileds Luxeon LEDs*
Lighting control system: *Artistic License Colour Tramp, with Art-Net DMX*

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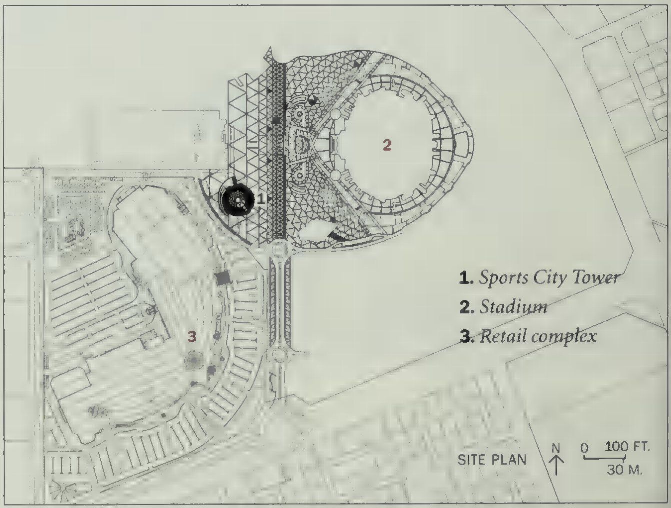
The Sports City Tower, constructed in Doha, Qatar, for the 15th Asian Games last November and December, is not a practical building. The 430,000-square-foot structure's usable floor area is paltry considering its 1,000-foot height. But French firm AREP was not instructed by its client, Qatar's heir apparent Sheikh Jassim Bin Hamad, to worry about practical issues. They were instructed to produce a building that would become a memorable symbol for the fast-growing country.

Program

The 51-floor, parabolic-shaped tower, which served as a giant torch for the games last year, also includes other building components cantilevered from its concrete core: an 18-story hotel, a three-story sports museum, a four-story presidential apartment for Sheikh Bin Hamad, a three-story rotating restaurant, and a two-story viewing deck at the top. Because of delays at the outset (including a change of contractor and architect), the architects had to realize the $175 million project in 18 months. The tower has not been able to attract an operator for its hotel, thus its interiors have not been finished.

Solution

AREP, selected for the project in 2005, worked with a conceptual sketch by local architect Hadi Simaan, who had envisioned a structure whose tapering shape would enhance the presence of the flame for the Asian Games and contrast sharply with the flat desert.

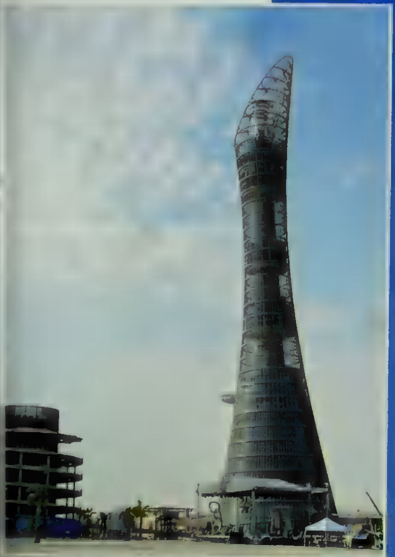


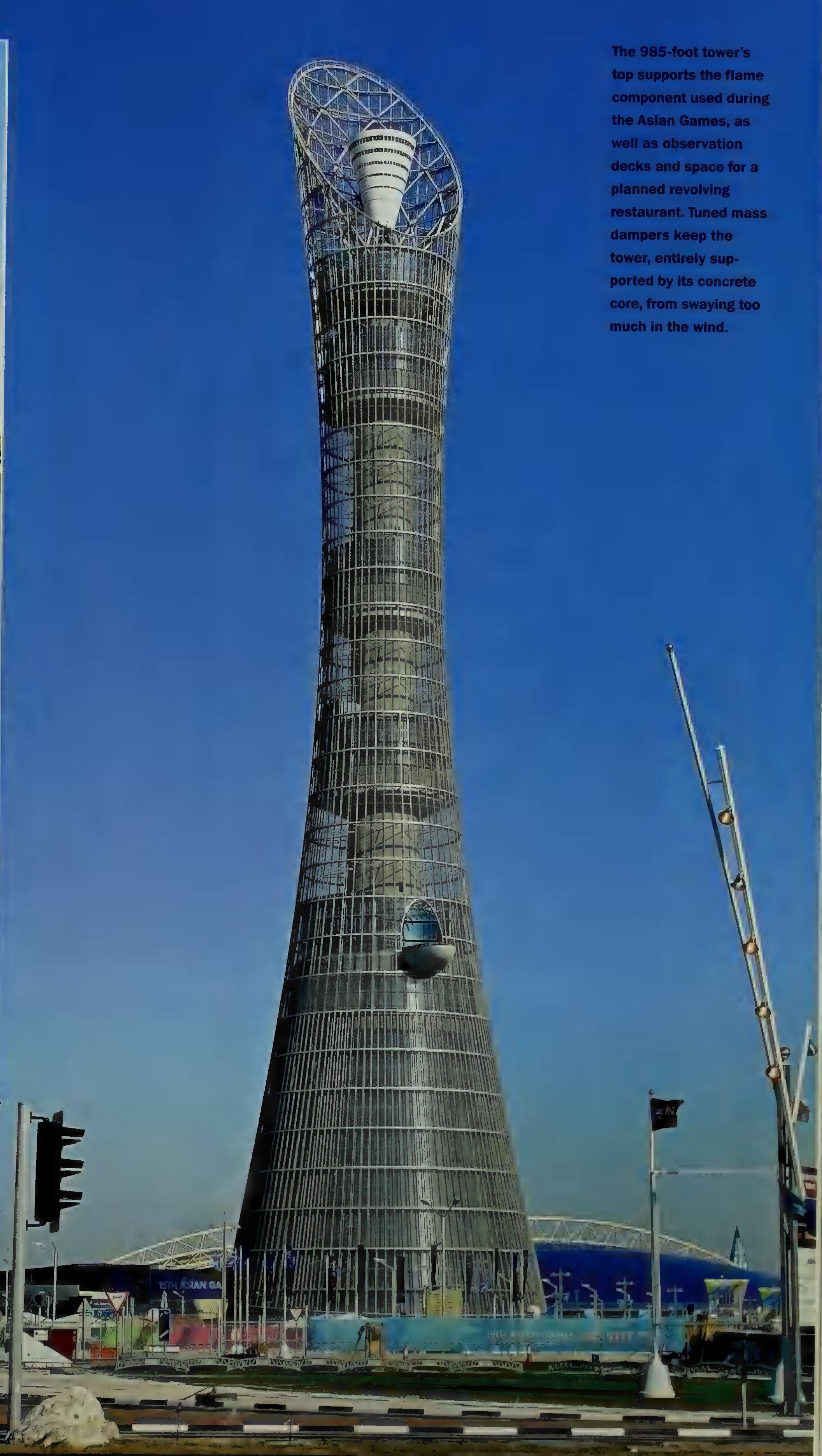
Developed closely with structural engineers in the London office of Arup, the final form consists of a 3-to-6-foot-thick, reinforced-concrete cylinder (the core), varying from 40 to 60 feet in diameter, encircled with radiating networks of cantilevered steel beams on each floor of its building modules. The modules themselves are composed of steel columns, metal decking, concrete slabs, and outer tension and compression ring beams, which support glass-paneled outer walls. The bottom of each module is covered with glass-fiber-reinforced concrete. Beams, as well as steel struts tying all the structural components together, are bolted through the concrete core and hence are anchored into place, transferring vertical loads from perimeter columns and ring beams to the core.

Outside the modules, AREP suspended a taut, transparent steel-mesh cladding—giving the building its shape—mounted on a steel frame attached to the building's outer ring beams. The gridlike mesh's vertical spacing gets wider as it moves up the building, adjusting to increasing wind. It gets narrower on the south-facing side to adjust to increased sunlight. The building is 230 feet wide at the bottom, 85 feet high in the center, and 108 feet wide at the top.

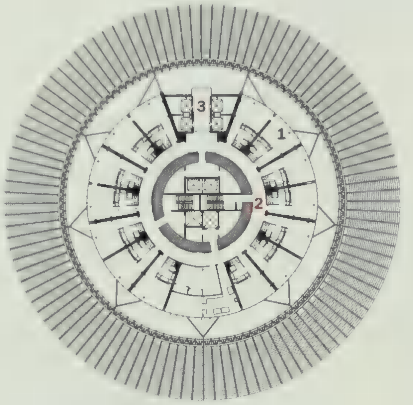
A long tube for the flame is set

Sam Lubell is the California editor of The Architect's Newspaper.

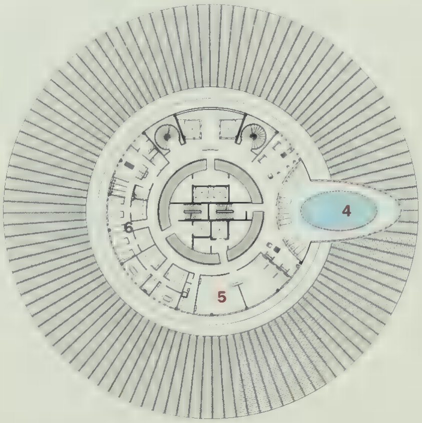




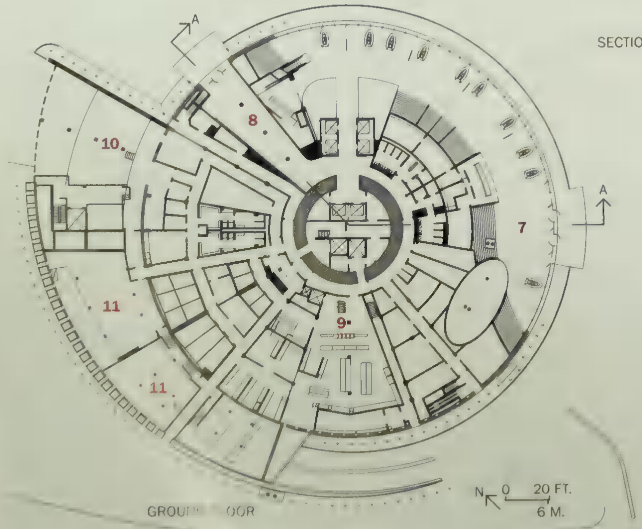
The 985-foot tower's top supports the flame component used during the Asian Games, as well as observation decks and space for a planned revolving restaurant. Tuned mass dampers keep the tower, entirely supported by its concrete core, from swaying too much in the wind.



TYPICAL HOTEL FLOOR

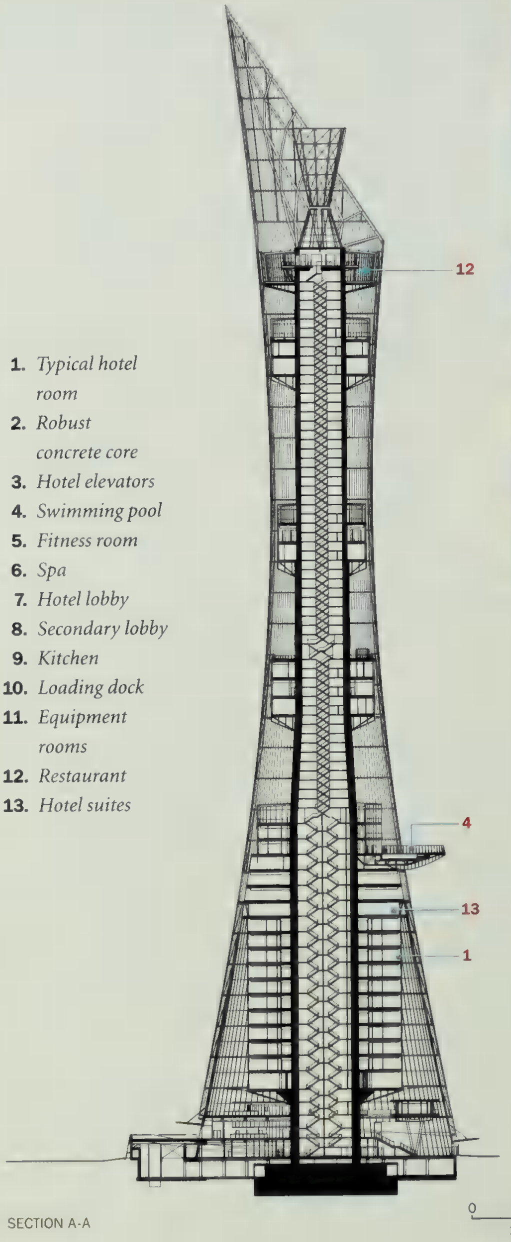


18th FLOOR/SPA

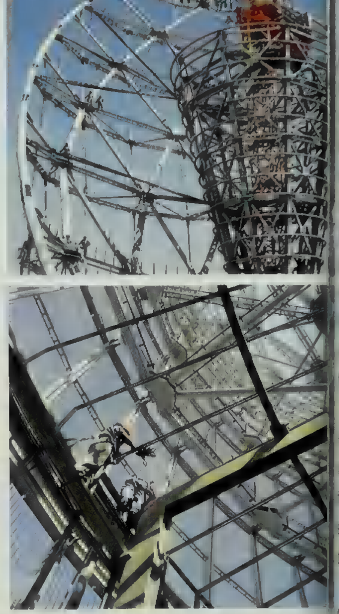


GROUND FLOOR

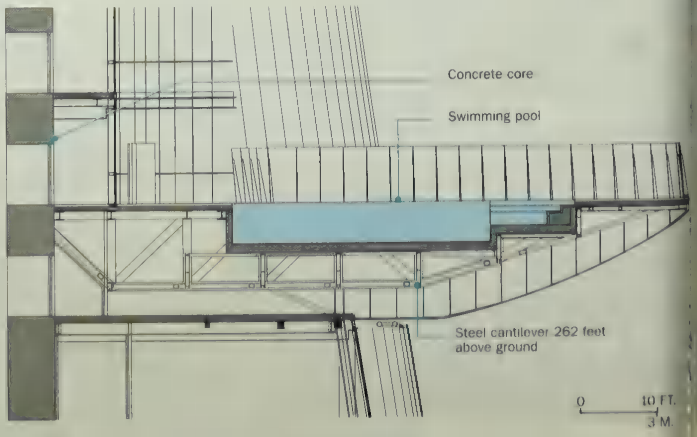
1. *Typical hotel room*
2. *Robust concrete core*
3. *Hotel elevators*
4. *Swimming pool*
5. *Fitness room*
6. *Spa*
7. *Hotel lobby*
8. *Secondary lobby*
9. *Kitchen*
10. *Loading dock*
11. *Equipment rooms*
12. *Restaurant*
13. *Hotel suites*



SECTION A-A



The wider-spaced steel mesh at the pinnacle (above and top) allows enough wind to pass through to mitigate the heat effects of the tower's flame.



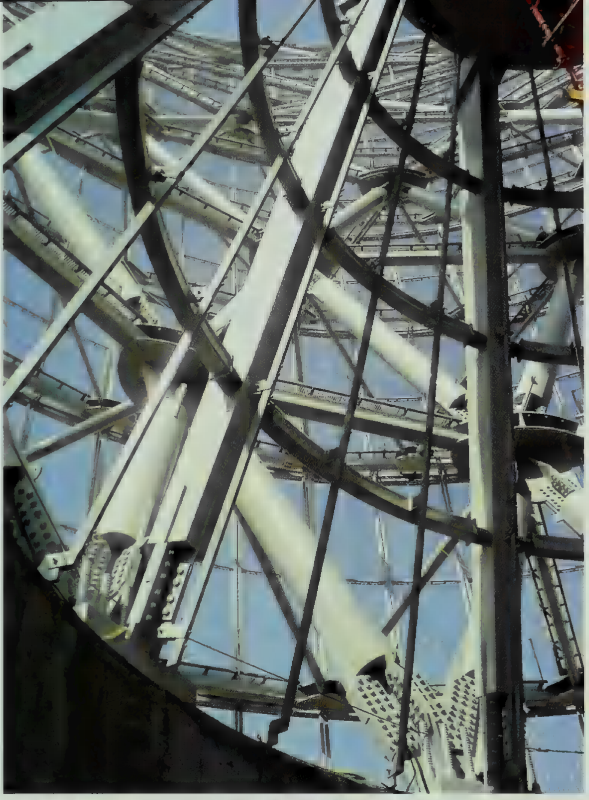
inside a 100-foot-tall, upside-down, aluminum-panel-clad cone, which is itself set inside a 230-foot-high steel diagrid frame. The frame is anchored at its bottom via a concrete frame reinforced with a circumferential ring beam that is attached to the core via a radial arrangement of concrete columns. AREP project director Bruno Sarret points out that high winds prevent the flame's heat from causing a fire.

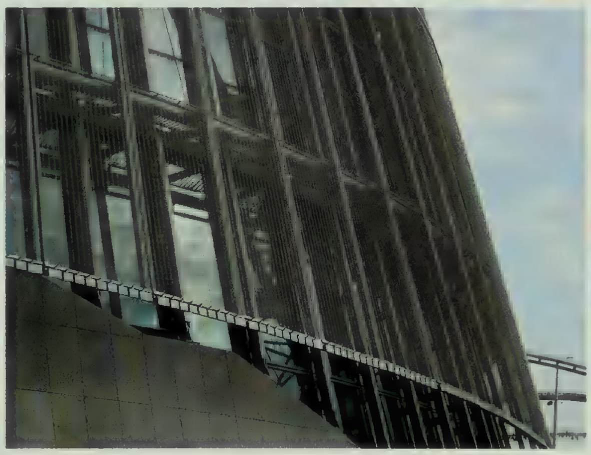
The planned lobby for the hotel is a 230-foot-high space, with a 3-story grand stair and marble floor that will have subtle lanes etched into its surface, reminiscent of a running track.

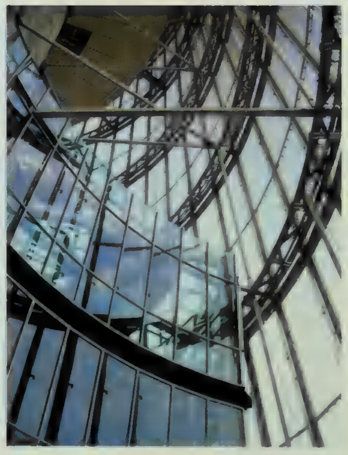
Commentary

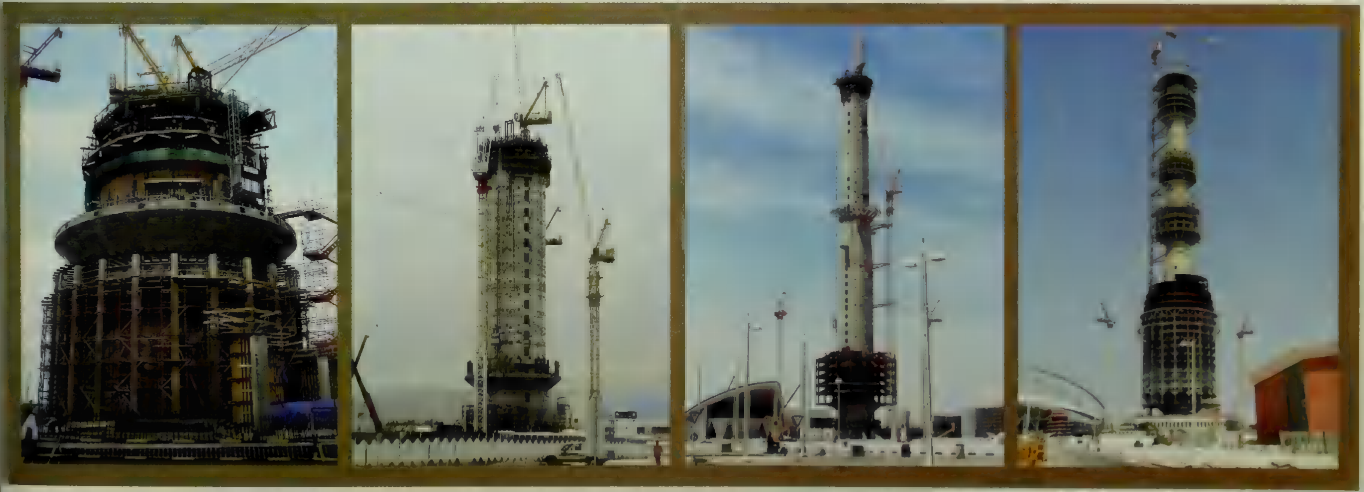
The gargantuan building required some leaps of faith. For instance, the contractors, BESIX, were uneasy about the flame's effect on the rest of the building until the day it was first lit. "They warned us, 'You don't want to end this thing on a bad note,' " says Sarret.

Although it is disappointing that the hotel has not been realized, the tower is easily the tallest, most dramatic element in a series of public projects—composing the 320-acre Sports City just east of downtown—that includes a new stadium, arenas, and a mosque. At night, a display of 4,000 LED lights, wired inside the frame, explodes in a series of colors and designs that produce exactly the effect they should: shock and amazement. ■









The glass-enclosed lobby (below left and right) echoes the structural bravado of the steel, mesh, and concrete at the tower's top (left). The lobby's interiors, designed by the French firm ECART, should be finished by 2009. The complex construction sequence of the tower (bottom) required contractors to pour the concrete core first and then follow behind with the cantilevered steel structural components that will eventually support hotel functions.

Three: MONTEVIDEO TOWER

Rotterdam, the Netherlands

Mecanoo transforms a postindustrial pier with a multifaceted residential tower in one of Europe's most architecturally progressive cities.

By Penelope Dean

Architect: *Mecanoo Architecten—Francine Houben, director; Aart Fransen, technical director; Allart Joffers, senior architect*
Client: *ING Real Estate*
Consultants: *ABT (structural); Schreuder Groep (m/e/p); Adviesbureau Peutz & Associates (environmental); Ineke Hauer, Rick Vermeulen (artists); Kats & Waalwijk Group (project management)*
General contractor: *BESIX*

Size: *619,250 square feet*
Cost: *$120 million (estimated)*
Completion date: *May 2006*

Sources
Elevators: *Kone*
Concrete formwork: *Doka*

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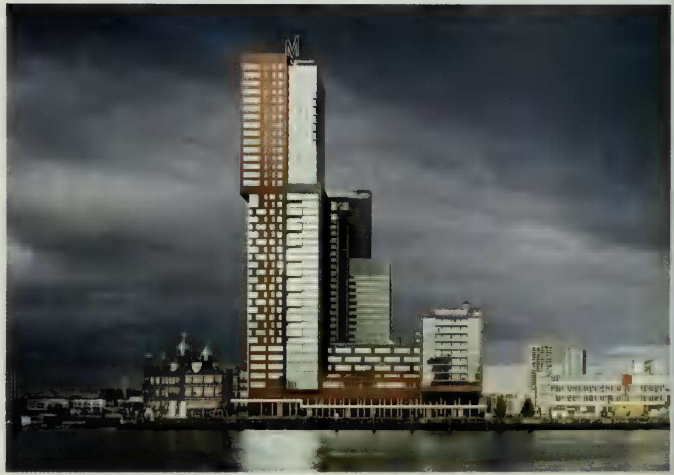
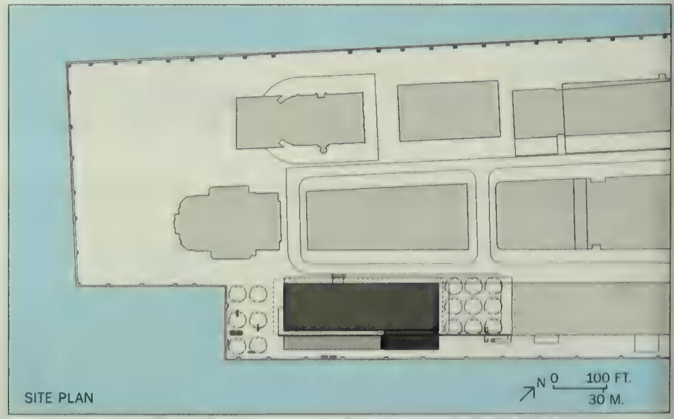
Sitting somewhere between the Erasmus Bridge designed by Ben van Berkel, the Euromast or "space tower" designed by H.A. Maaskant, and almost perfectly aligned above the twin black towers designed by Wiel Arets, a giant, rotating letter *M* floats on top of what is fast becoming Rotterdam's crowded riverfront skyline.

It is not until one is moving south down Rotterdam's central street—the *Coolsingel*—to cross the Erasmus Bridge that the rotating *M*'s "pedestal" finally comes into view: a tall, thin, gray-white-and-orange tower, clad with different materials, at the end of Rotterdam's Wilhelmina Pier. Turning right and moving toward the end of the pier, this recently completed tower, designed by the Dutch architects Mecanoo, now appears as a series of superimposed volumes. And it is not until one actually enters the tower's lobby that the giant letter *M* begins to make any sense: a map of Uruguay revealing the *M* not only as the initial for its capital city, but also the tower's name—Montevideo—and, according to the architects, a "logo" to confirm "Rotterdam's maritime tradition."

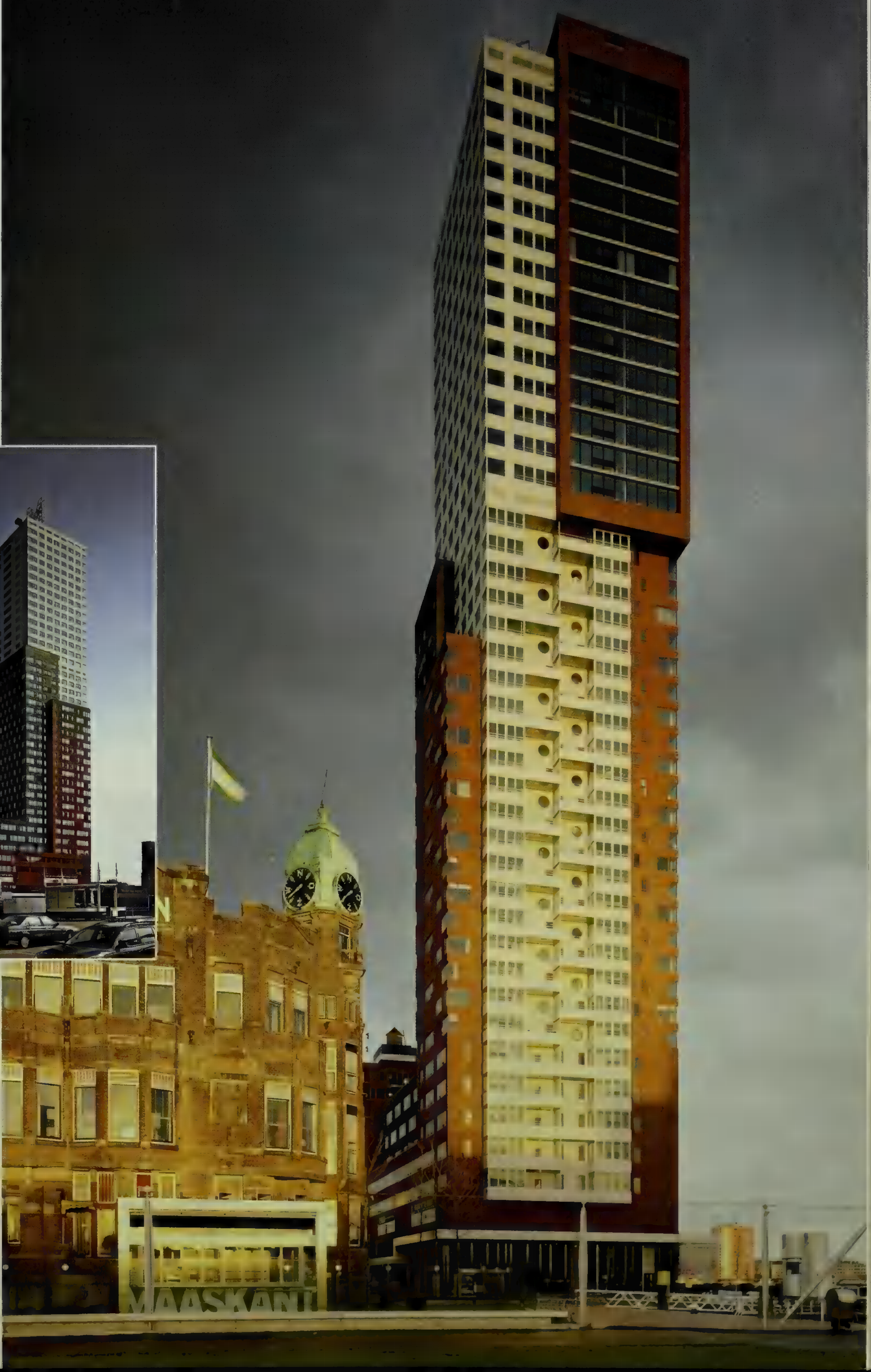



SITE PLAN

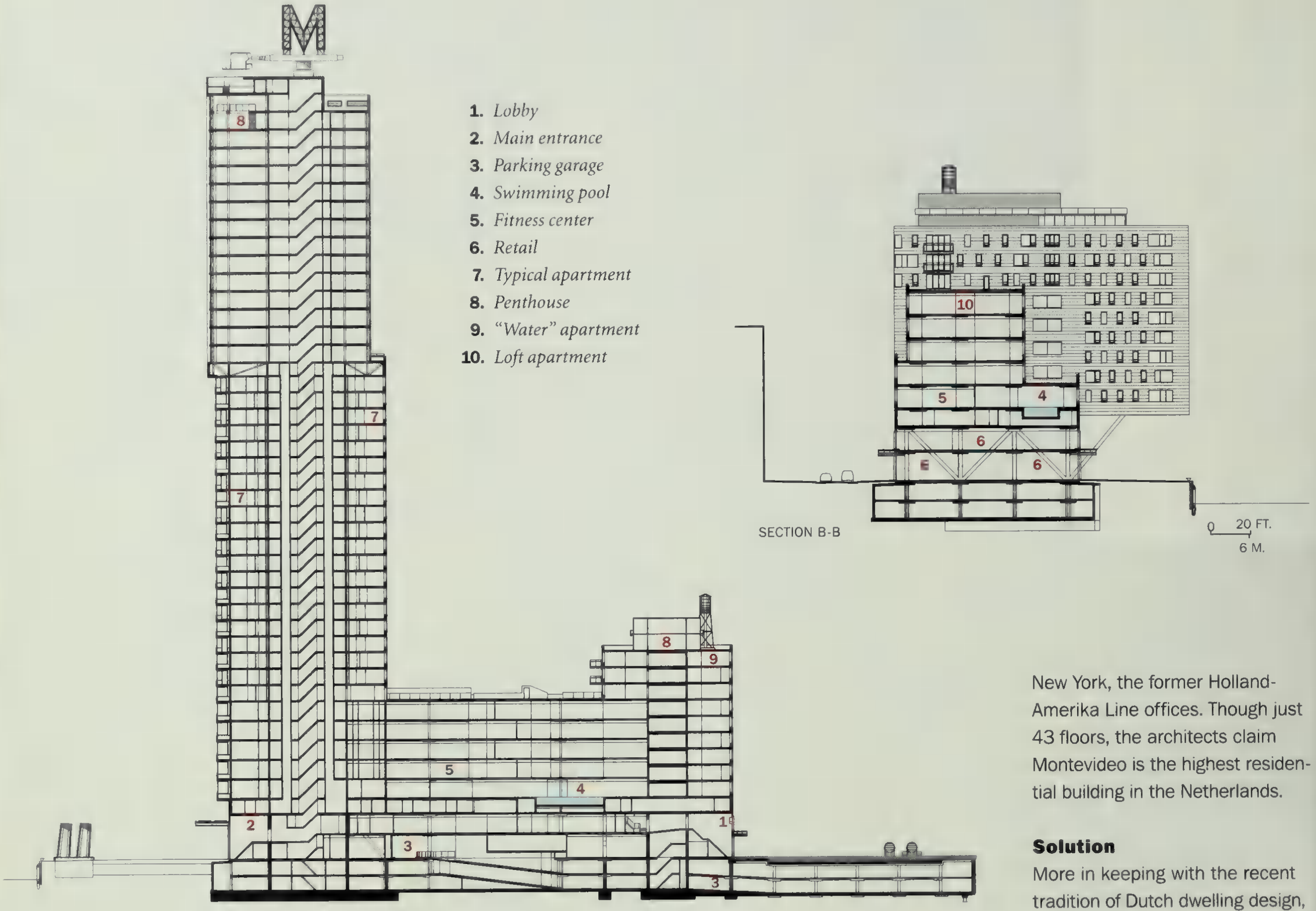
Program

Commissioned by ING Real Estate and the Rotterdam Urban Planning Agency in 1999, Mecanoo's Montevideo is one of several tall buildings planned for the Wilhelmina Pier area, part of Rotterdam's old city harbor now free for development after port activities moved west, closer to the coast. Aptly labeled "Skyscraper City," the area forms part of a master plan, designed by Foster + Partners in London, aimed at integrating commercial and residential zones with recreational and urban programs. As predominantly residential, Montevideo sits at the southern side of the pier adjacent to Hotel

Penelope Dean is an architect and assistant professor of architecture at the University of Illinois at Chicago.



The east-west section of the nearly 500-foot Montevideo tower looks like an oversize serif-font *L*, another "initial letter" branding the building up close, just as the *M* allegedly brands from afar. The tower's prominent Wilhelmina Pier location (opposite) assures the *M*, designed by Rick Vermeulen, can be seen throughout the port city.



1. *Lobby*
2. *Main entrance*
3. *Parking garage*
4. *Swimming pool*
5. *Fitness center*
6. *Retail*
7. *Typical apartment*
8. *Penthouse*
9. *“Water” apartment*
10. *Loft apartment*

SECTION B-B

SECTION A-A

The cantilever supports the “Water” apartments (above left). In the lobby (above), a map of Uruguay recalls the city’s maritime tradition, and the tower’s name.

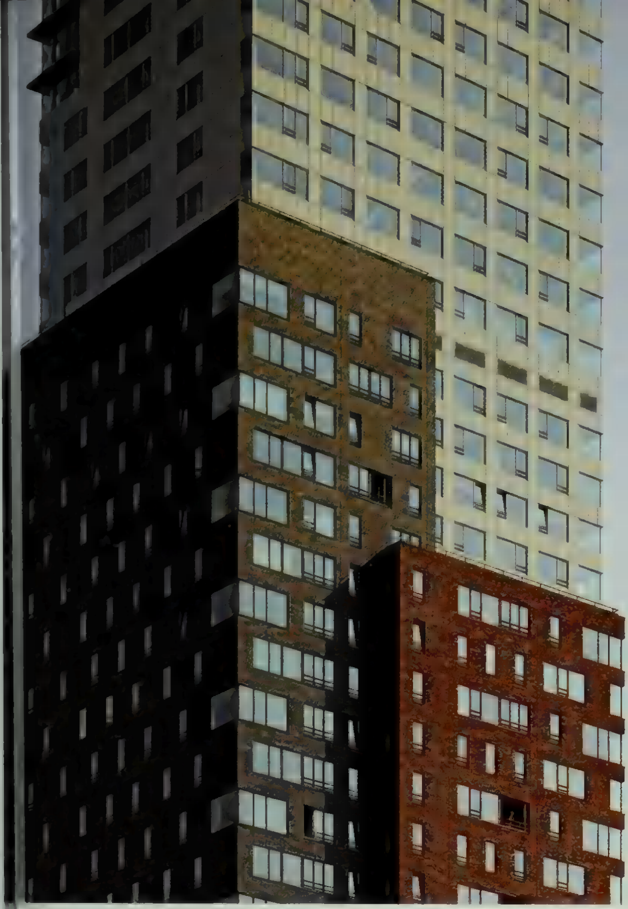
New York, the former Holland-Amerika Line offices. Though just 43 floors, the architects claim Montevideo is the highest residential building in the Netherlands.

Solution

More in keeping with the recent tradition of Dutch dwelling design, Mecanoo developed a catalog of apartment formats, with different sizes marketed to accommodate a multitude of lifestyles and family types. The firm has developed 54 different types across 129 units.

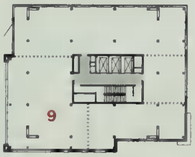
Programmatically organized in section, the architects piled large flats with varying floor heights into the main tower: five levels of “Loft,” 20 levels of “City,” and 14 levels of “Sky” apartments, as well as a penthouse. Ten levels of “Water” apartments create a mansion-esque mix in the shorter tower that cantilevers out toward the water. The two towers connect through a five-story horizontal bar containing offices and public facilities, such as a swimming pool and fitness center.

Described by Mecanoo as a “vertical city” composed of “intersecting volumes,” at first glance Montevideo’s formal composition appears as the result of its programmatic organization. Yet given that

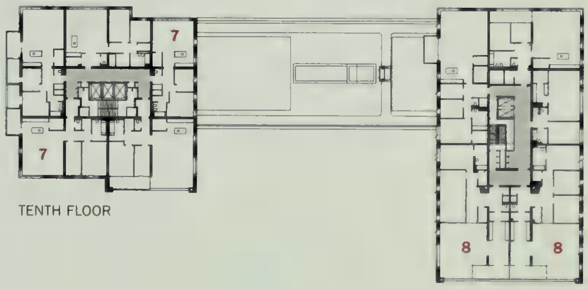


A combination steel-and-concrete structure helps to define the variety of facade materials (left) and breaks up the tower's overall volume. This is in contrast to the American preference for repeatable floor plates and uniform materials.

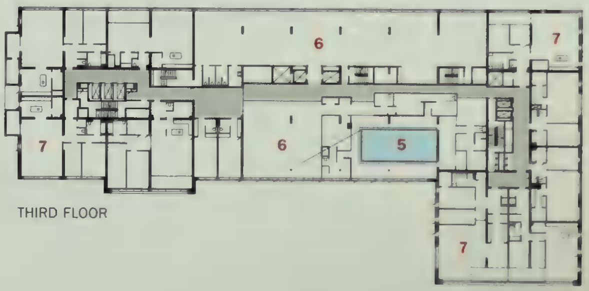
1. *Main entrance*
2. *Lobby*
3. *Retail*
4. *Parking garage ramp*
5. *Swimming pool*
6. *Fitness center*
7. *"Water" apartment*
8. *Two-story apartment*
9. *Penthouse*



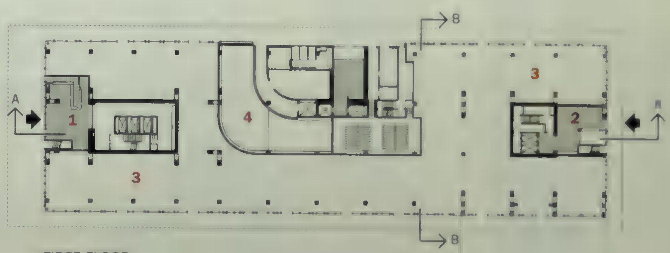
PENTHOUSE FLOOR



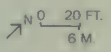
TENTH FLOOR

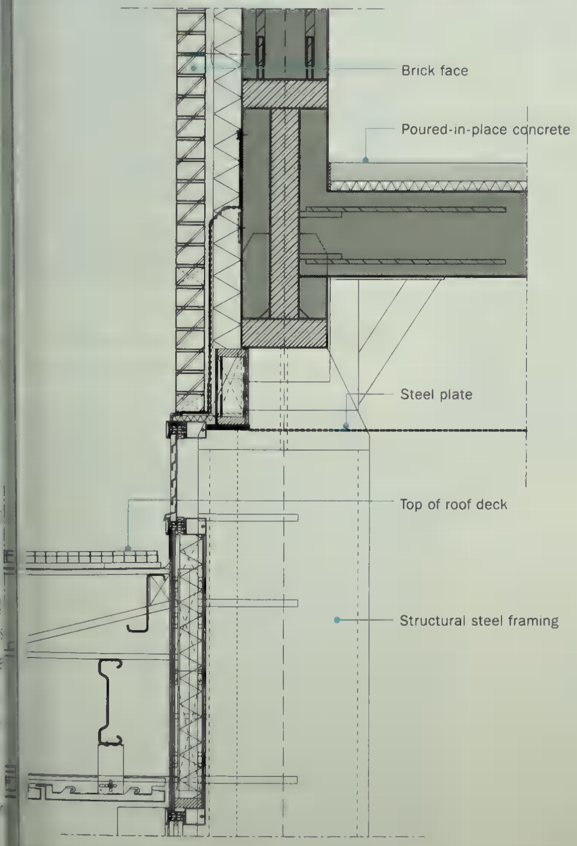


THIRD FLOOR

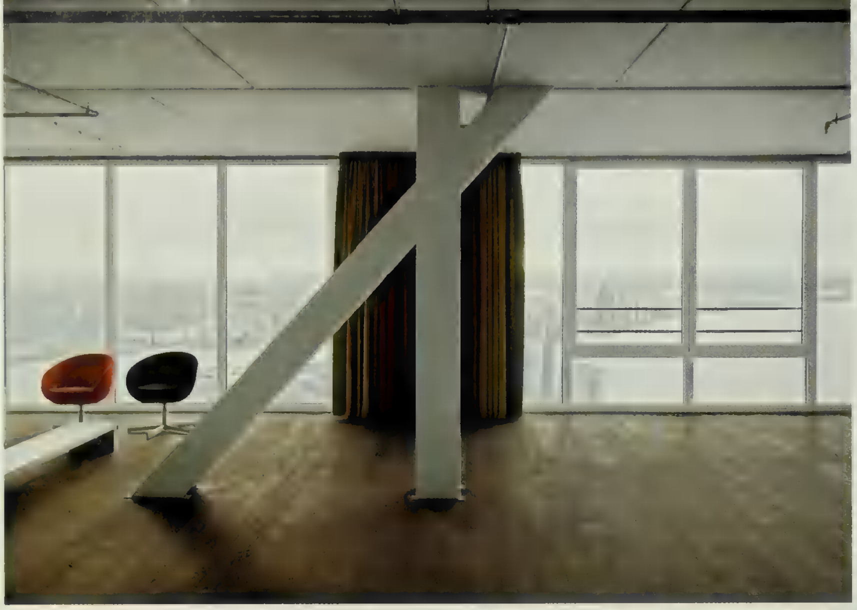


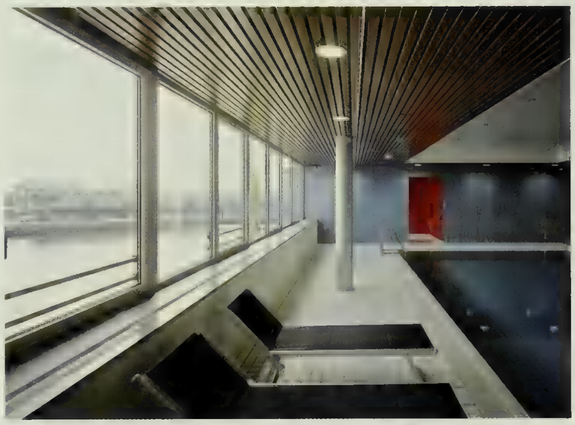
FIRST FLOOR

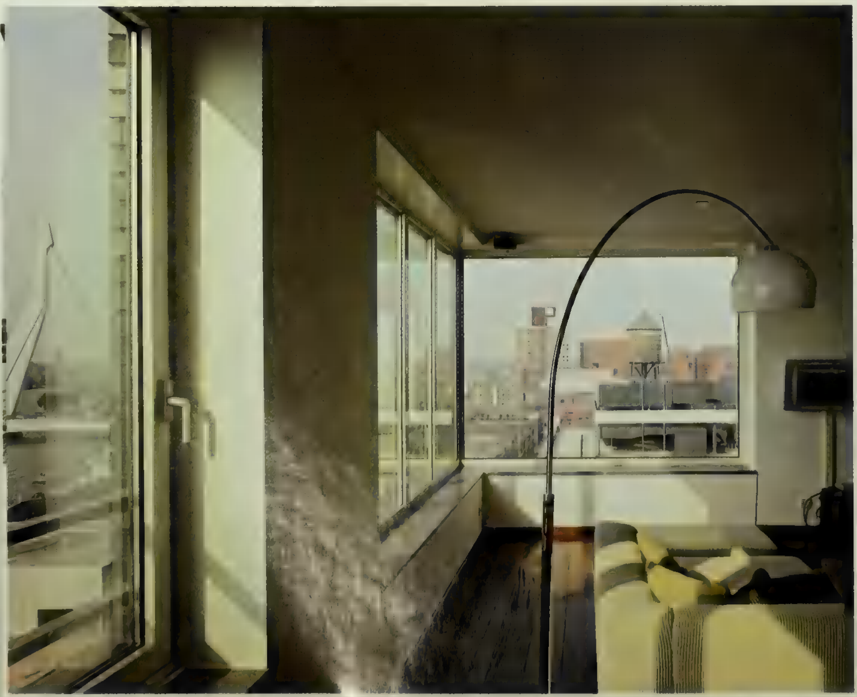




ST TURAL TRANSITION DETAIL







Mecanoo designed 54 different types of apartments, including large loftlike units (left), as well as more conventional apartments with balconies facing the River Maas (bottom). A swimming pool on the third level (below left) is part of a larger fitness center open to the public. Befitting a luxury building, the 41st-floor penthouse includes its own private swimming pool.

the tower's outline does not directly relate to the extrusion of apartments in plan, the building's profile alludes to a volumetric logic motivated by structural systems and facade articulation. Indeed, it is the alternating construction of steel (the first two floors), followed by a "concrete climbing form" (27 floors), and back to steel again (14 floors), that enables the building to achieve its diverse spatial structure. The different cladding materials—prefabricated concrete, brickwork, and aluminum curtain walls—define each of the tower volumes separately. Only the facades' varying window patterns suggest the array of apartments within. The move away from what Mecanoo refers to as the repetitive "housing project"—a Dutch typology of identical flats accessed from external galleries—toward a more differentiated volumetric composition marks another formal shift: horizontality and legibility now give way to verticality and ambiguity.

Commentary

Perhaps what is most interesting about Mecanoo's Montevideo is the new kind of tower it adds to existing conversations about city skylines. As a slender aggregation of laminated volumes—a sushi roll without the seaweed wrap—it is a divergence away from the American norm of a fat-to-thin section of repetitive floor plates. Instead of breaking down volumetric form, as Skidmore, Owings & Merrill did in the 1973 Sears Tower in Chicago, with its thinning appearance via tapering floor plates as a function of real estate logic, or the stepped-back volumes of Hugh Ferris's 1930s envelope studies derived from Manhattan zoning laws, Mecanoo has simply constructed a collage of boxes. The approach may be best described as a new "visual" typology for the city—thinness—disciplined by vague compositional logics rather than those of context, setback codes, or economics. In what appears to be a more liberated design exercise, Mecanoo's Montevideo points toward the differences in design *investment* between the European and American high-rise. ■

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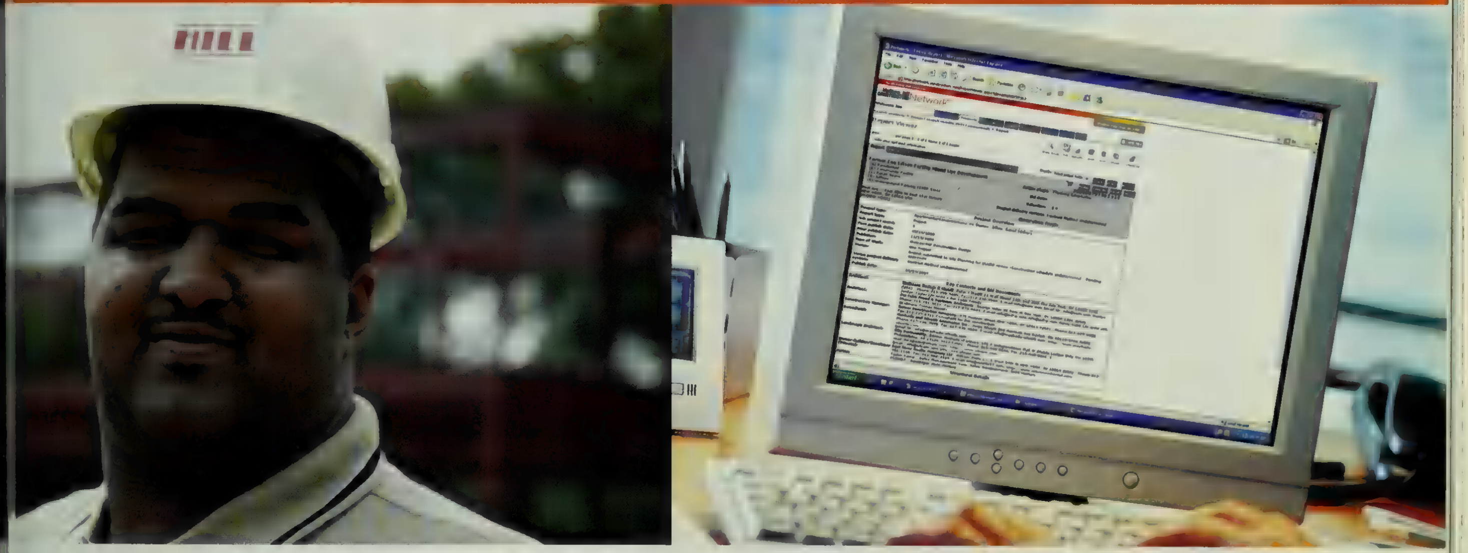

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Miracle on (and Under) Second Avenue

A NEW YORK CITY OFF-AGAIN, AND NOW ON-AGAIN, PUBLIC INFRASTRUCTURE PROJECT DEPENDS UPON INTENSE COLLABORATION BETWEEN ARCHITECTS AND ENGINEERS

By Sara Hart

With derisive taglines like "the most famous thing that's never been built" and "the line time forgot," news this spring that New York City's Second Avenue Subway (SAS) was about to start construction was met with nearly unanimous approval tempered by cautious optimism, despite the guarantee of years of unceasing construction affecting hundreds of thousands of Manhattan residents, institutions, and businesses. Public consensus acknowledged that the long-term advantages outweigh the short-term disruptions and inconveniences.

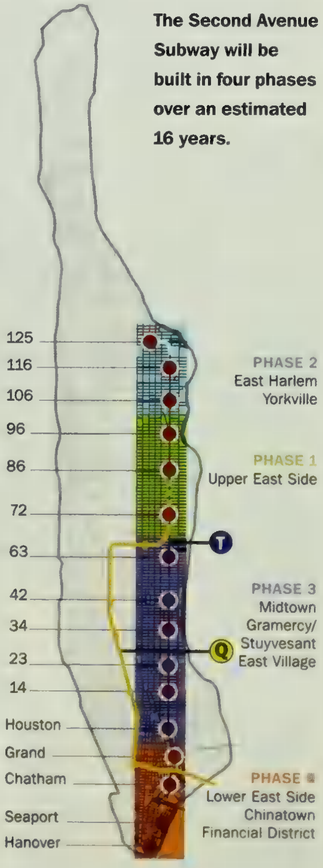
Predicted to cost $16.8 billion (in 2004 dollars), the mega-infrastructure project is the largest public-works undertaking in New York in 50 years. To be built in four phases, over an estimated 16 years, the new subway—also known as the T Line—will serve approximately 500,000 riders daily at 16 new stations along 8.5 miles of new track. It will relieve the overburdened Lexington Avenue Line, the only subway serving the East Side, which reportedly operates at 120 percent capacity.

Almost from the moment of conception in 1929, the project became the perennial victim of every 20th-century economic crisis and vagary of war. During the Great Depression, the project was scaled back and then postponed indefinitely in 1939. A new master plan was considered, then suspended in 1941 along with other nonessential public works, when the U.S. entered World War II. Another postwar scheme was shelved due to huge inflation experienced during the Korean War. Multiple iterations later, construction began in 1972, only to be abruptly halted as New York City teetered on the brink of bankruptcy.

Another 20 years went by, and finally the Metropolitan Transit Authority (MTA) and New York City Transit (NYCT) began the Manhattan East Side Alternatives Study. The goal was to recommend a course of action to reduce crowding and delays on the Lexington Avenue Line and create mass-transit accessibility for the far East Side of Manhattan. The study team compiled a list of more than 20 alternatives to resolve existing and future transportation issues, including the resurrection of the master plan for a new Second Avenue Subway.

In July 2004, the Federal Transit Administration (FTA) certified that the requirements of the National Environmental Policy Act had been satisfied for the Second Avenue Subway project. By December, preliminary engineering was completed for all four phases. Two years later, in April 2006, Extended and Final Preliminary Engineering was done. The FTA then authorized the MTA to begin the Final Design of Phase I. On April 12, 2007, the governor, other state and city officials, and several transit administrators broke ground for the fourth time since 1929 and declared the project under way. And they mean it this time.

Sara Hart, a former RECORD *editor, is a New York City–based freelance writer.*



The Second Avenue Subway will be built in four phases over an estimated 16 years.

CONTINUING EDUCATION

Use the following learning objectives to focus your study while reading this month's ARCHITECTURAL RECORD/ *AIA Continuing Education article. To earn one AIA learning unit, including one hour of health safety welfare credit, turn to page 166 and follow the instructions.*

Learning Objectives

After reading this article, you should be able to:

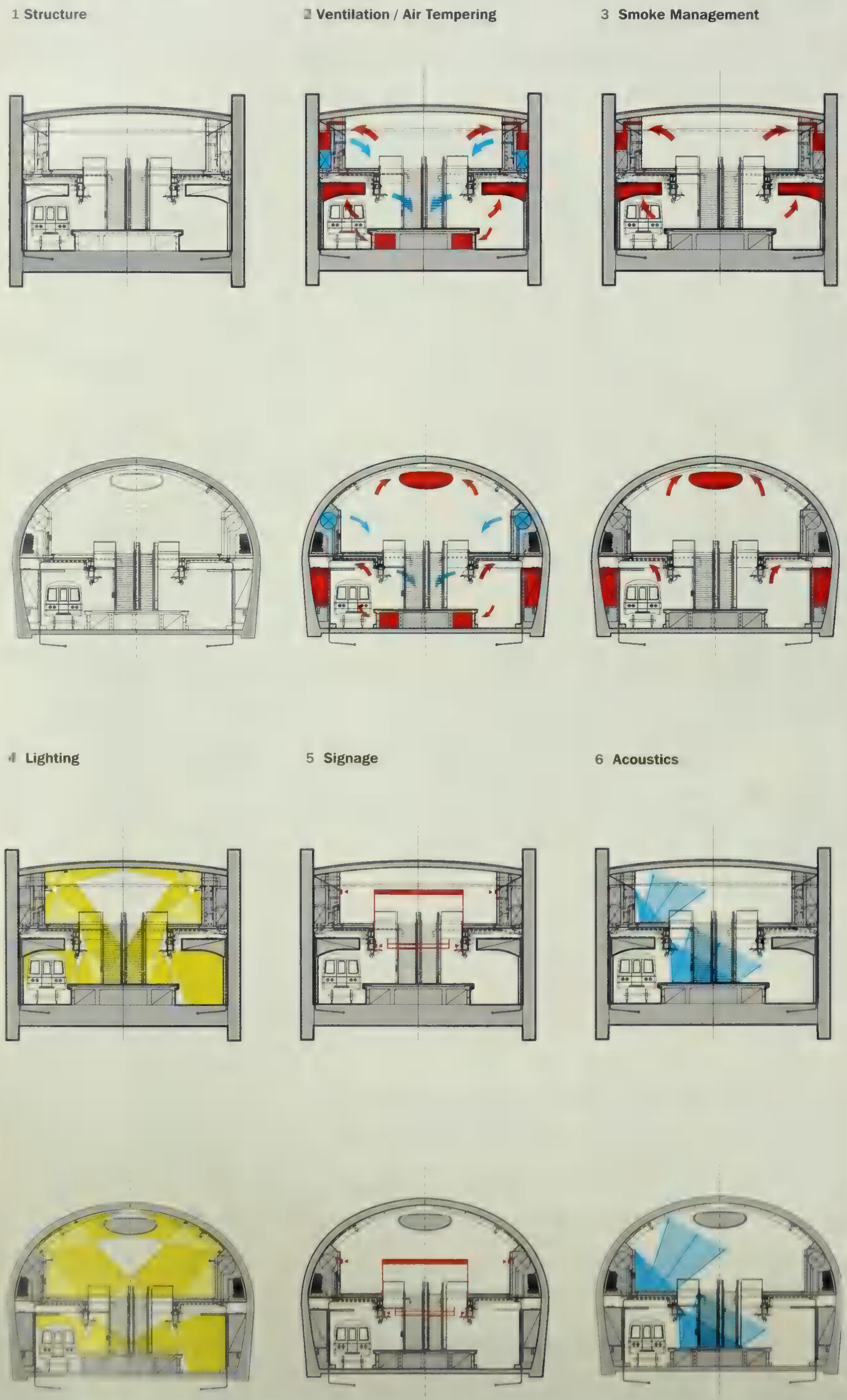
1. *Discuss the history of the Second Avenue Subway project.*
2. *Explain the excavation methods that will be used to create the subway's tunnels.*
3. *Discuss the project's noise- and vibration-mitigation features.*

or this story and more continuing education, as well as links to sources, white apers, and products, go to ***architecturalrecord.com/tech/***.

It takes a big village to build a subway

Public infrastructure projects are by definition enormously complex undertakings, involving dozens of local, state, and federal agencies; community boards; arts commissions; and teams of architecture, engineering and construction consultants. Officially, the MTA and the NYCT are the clients. In that role, the MTA assembled a team to plan, design and engineer, schedule, and oversee construction of the phased project. This team, a DMJM Harris/Arup joint venture, is a complex, expansive architecture and engineering partnership. The principal players of the joint venture, representing all the design and engineering specialties, work under one roof under the authority of the NYCT's Second Avenue Subway Project, an entity of the MTA Capital Construction Company.

"There are many stakeholders involved in every phase of planning and design," says Anil Parikh, SAS program manager. "We conduct working groups with technical advisers, the design team, and user representatives to discuss constructibility, operations, and maintenance, and then investigate options, debating the pros and cons of each," he explains.



STATION TECHNOLOGIES

1 Structure

2 Ventilation / Air Tempering

3 Smoke Management

4 Lighting

5 Signage

6 Acoustics

1. The Second Avenue Subway Stations, whether vaulted or rectangular in profile, are column-free to the extent possible. This structural strategy will improve passenger flow, visibility, and security. In order to achieve the column-free structure without excessive cost or large beam depths, economical structural spans and spacing modules are incorporated into station design.

2. The underplatform and overtrack exhaust systems are central to the air-tempering and ventilation strategies. Exhaust ducts and fans will remove air from areas closest to the two largest sources of heat in the station—the brakes and car air conditioners. In the winter, by turning these exhaust systems off, enough heat will be retained within the station to render mechanical heating unnecessary.

3. During a fire, the mechanical system operates in an emergency mode and extracts smoke from the tunnel and underground stations. Simultaneously, the system provides fresh air to passenger egress areas, to create zones of higher air pressure and to minimize migration of smoke.

4. The lighting design for the Second Avenue Subway will improve the passenger experience with brightly lit walls, enhanced lighting at transition points, and the use of daylight, especially at entrances. Energy-efficient technologies, in concert with a station-wide lighting control system, will be incorporated throughout.

5. The new subway line's signage will employ both fixed and variable messaging elements. The centrally controlled variable-messaging system will display updated train information and emergency information. Fixed and variable signage will be integrated into the architectural features to increase visual clarity and enhance navigation.

6. Through geometry and the strategic use of sound-absorptive materials, the stations will provide comfortable aural environments with a clear and intelligible public address system.

Transparent canopies will define station entrances, provide protection from the elements, and bring daylight into station mezzanine levels.

Although many alternatives are identified for every stage, all decisions must answer to a higher power—the assessments of the painstakingly researched environmental-impact statement. Because the SAS project is the beneficiary of federal funding, such an evaluation was required prior to construction in accordance with the National Environmental Policy Act. The client and the FTA recently completed the final environmental impact statement (FEIS). The document notes that although it is final with regard to starting construction, it can be amended as previously unaddressed issues or unanticipated complications arise.

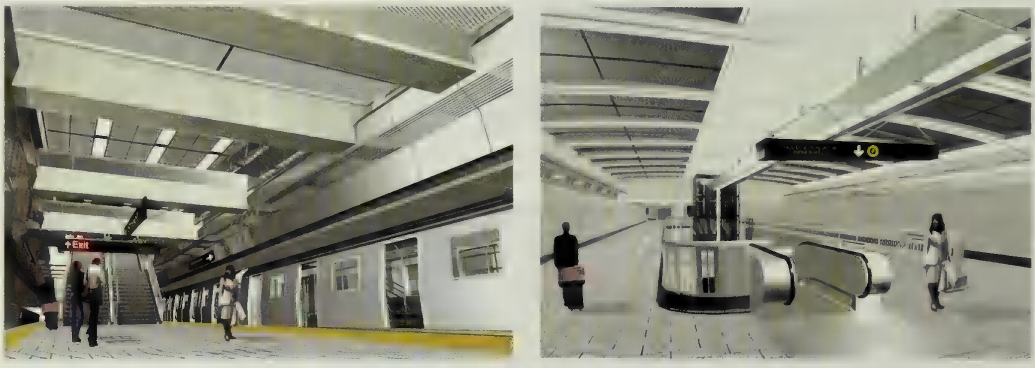
Some of the many factors the FEIS takes into account are the project's potential effects on transit service and roadway congestion, and social and economic conditions. It also considers issues such as air quality, noise and vibration, energy and natural resource use, and contaminated material disposal. Mitigation measures to reduce localized mpacts are described in the document. These are requirements, not guidelines. Assessments are based on "reasonable worst-case scenarios," which means that while there may be alternatives for any given process, the FEIS evaluated the one with the greatest potential for disruption. The assumption is that approved alternatives, by definition, fall within the limits set by the FEIS for the worst-case scenario.

THE PRINCIPAL PLAYERS, REPRESENTING ALL THE DESIGN AND ENGINEERING DISCIPLINES, WORK UNDER ONE ROOF.

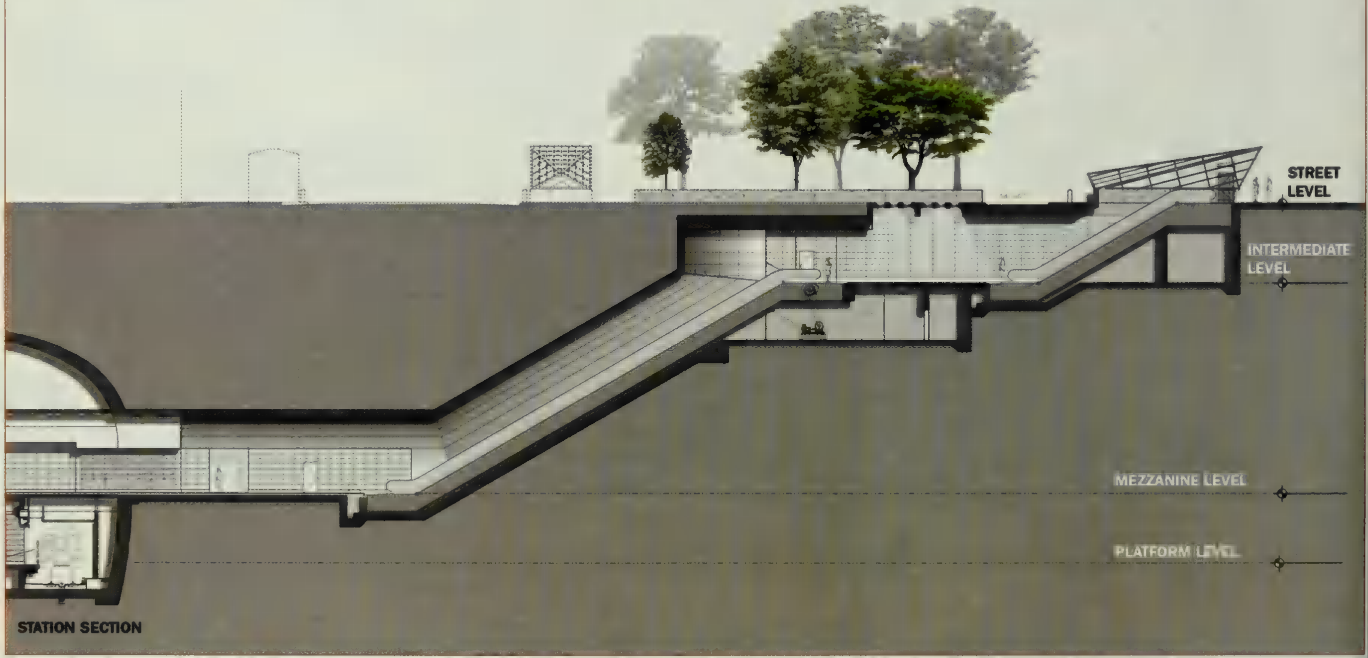
Between rock and a hard place

On-site blasting and excavating are the inaugural steps of most construction projects, and ground breaking usually proceeds without drawing much attention. In the case of the SAS, the sheer breadth and depth of the tunneling effort required considerable evaluation and detailed explanation in the FEIS. The document describes three approved tunnel methods—tunnel boring technology, cut-and-cover, and mining.

Some of the tunnels will be excavated using powerful circular boring machines that drill horizontally through the earth. The project will employ two types of boring technologies—a tunnel boring machine (TBM), for cutting through bedrock, and an earth-pressure-balance machine, to bore through soil. Although the street must be excavated in order to insert either type of machine at the desired depth, the process causes little additional surface disruption.



The profile of the Second Avenue Subway stations and tunnels will be either vaulted or rectangular in shape, defined by the excavation method employed. Platforms (right) and mezzanine levels (far right) will be largely column-free to aid passenger navigation, visibility, and security.



STATION SECTION

Most of New York City's existing subway system was built using the cut-and-cover method. Although it causes the most surface disruption of the three technologies, it is the easiest method for building a section of tunnel that is relatively close to the surface. This method involves digging trenches from the surface, holding back the surrounding earth with retaining walls, and constructing a frame to support a concrete or metal street deck. Cut-and-cover will be used to excavate more than half of the tunnels and to create entrances at every station location.

The third technique is mining, which will be used on portions of tunnel too short to make tunnel boring cost-effective, or for curved sections of the line where the radius is too tight for a TBM. To create tunnels using this method, contractors drill many small holes within a rock area and then place small amounts of explosives in each hole. Under carefully controlled and monitored conditions, explosives are detonated sequentially for short intervals of time, breaking the rock while dissipating the release of energy, lessening the potential for ground vibration at nearby structures.

When mining is done in soil, this so-called "drill-and-blast" process will not be necessary. Soil and rock can be excavated and removed using backhoes, bulldozers, or a clamshell shovel suspended from a crane.

Regardless of which mining method is used, shafts will be required to remove the excavated rock, soil, and debris. Cranes, small rail cars, and conveyors will be used to bring this spoil to the surface. Most of the excavated material will be clean crushed rock, which can be used to fill abandoned mines, build artificial reefs, reinforce bulkheads, and pave roads.

Architecture goes underground

While the tunnels are the conduits for transit services, they are also permanent volumes that define and confine the limits of the architectural and engineering efforts. Tunnel construction techniques yield two basic profiles for the station volumes—vaulted spaces created by the circular motions of the TBMs, and rectangular ones defined by the cut-and-cover method's soil-supporting slurry walls.

DMJM Harris, the architectural arm of the joint venture, has devised modular, transparent canopies at street level to define entrances, provide shelter, and create an openness to contradict the reality of descending into a cavern. Skylights will penetrate sidewalks, wherever feasible, to invite sunlight as far into mezzanines and platforms as possible. The subterranean experience will be enhanced by other factors, including way-finding strategies, temperature control, lighting, and acoustics.

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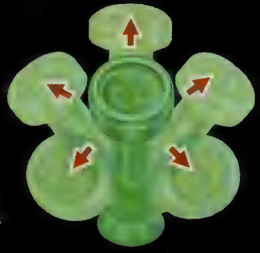

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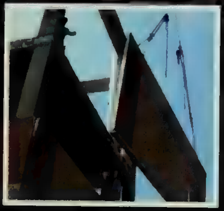

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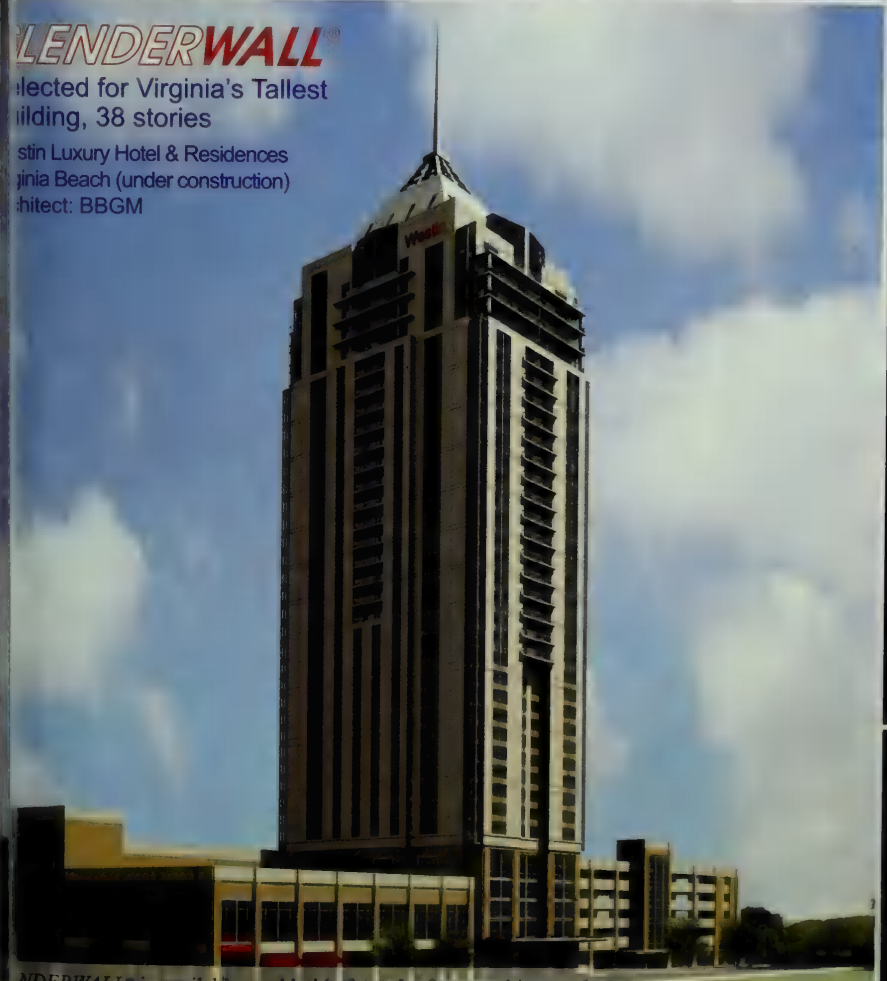

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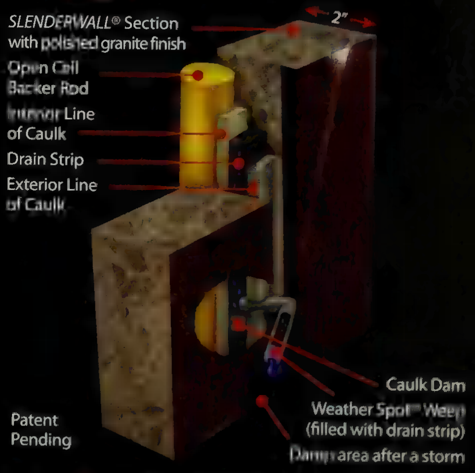

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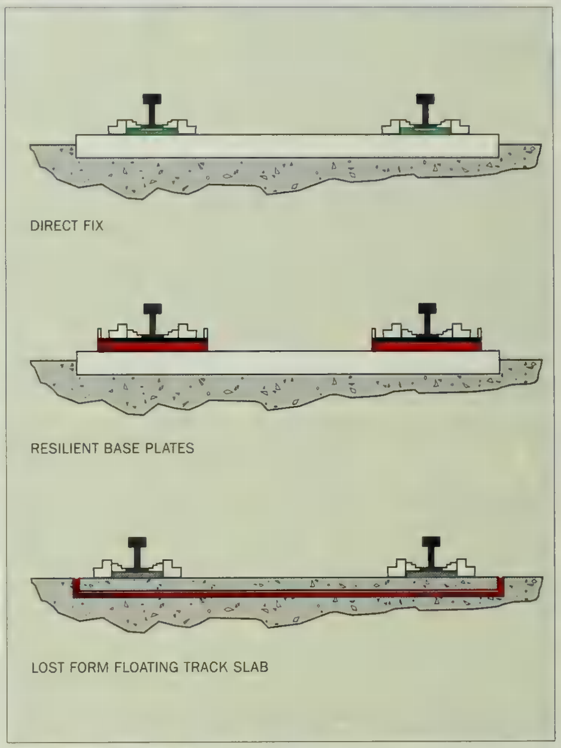
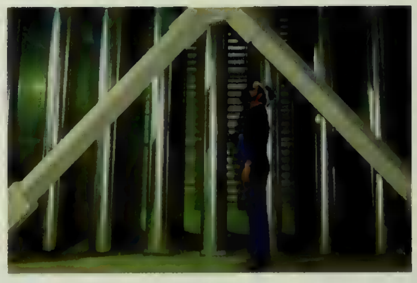


Ventilation equipment will be housed in street-level, multistoried enclosures (above and left) that will incorporate strategies to reduce noise emission, such as the fan-noise attenuator (right). To reduce ground-borne noise from the trains, the design team is investigating several options, including a variation on the "lost form" floating track slab. In this configuration, the rail is fixed directly to a concrete tie block that sits in a resilient surround. Existing subway tracks employ either a "direct fix" or "resistant base plate," which provide little or no vibration mitigation.



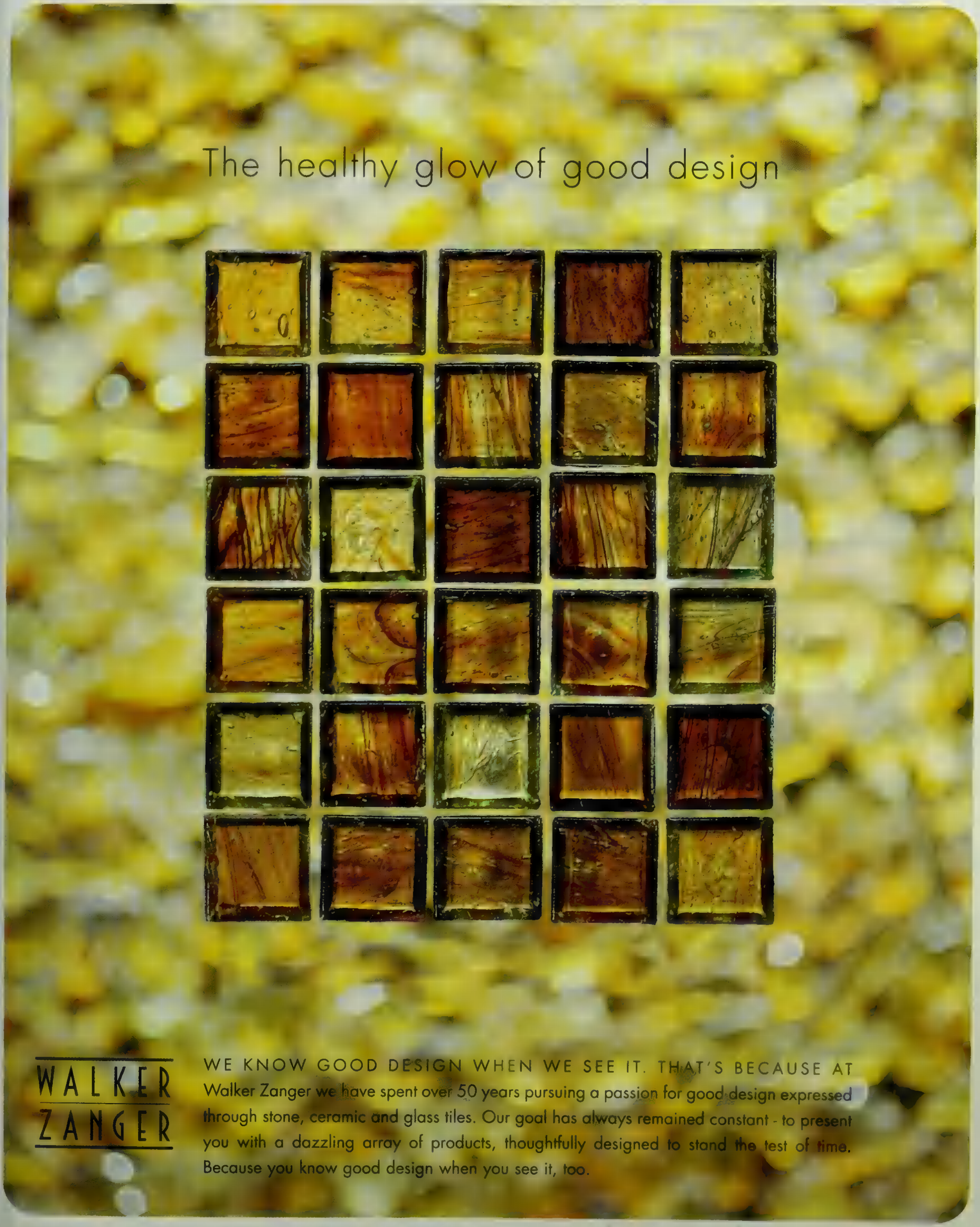
Acoustical integration is arguably the most challenging aspect of transit design. Sound has multiple air- and ground-borne sources—ambient crowd noise, public address announcements, mechanical noise, and track vibrations. Most of the attenuation and mitigation options involve intense architectural and engineering collaboration. "It's a totally integrated process," explains Kenneth Griffin, AIA, DMJM Harris's chief architect for the project. Griffin's team is designing the line's 16 new subway stations and several ancillary structures and is working closely with all the consultants. "We influence each other's strategies," he says.

THE EFFECTIVENESS OF SOUND-ABSORBING MATERIAL IS DEPENDENT ON ITS PROPERTIES AND ITS LOCATION.

For example, FEIS criteria calls for "comfortable and controlled aural environments," in which public address announcements are clearly intelligible. Acoustical engineers from Arup collaborated with the architects and NYCT communications engineers to investigate integrated options. Arup measured the acoustical conditions at existing stations to determine how current public-address systems work and assess the effectiveness of sound-absorbing finishes. They analyzed each link in the chain of sound transmission from the announcer's booth through the cabling infrastructure to the speakers and finally to station platforms, determining that the distortion that so often renders announcements unintelligible is cumulative. Back in Arup's in-house sound lab [RECORD, March 2003, page 149], every factor that either improves or degrades the quality of sound is isolated and evaluated independently, so that the system can be designed and specified as a whole rather the sum of its parts.

To help control reverberant noise from the public-address system, Arup is recommending that the mezzanine and platform ceilings include sound-absorbing elements that are merged with the station architecture. "The effectiveness of sound-absorbing materials depends not only on how much sound they absorb, but also on where the materials are located relative to the noise source," explains Arup acoustical engineer Joe Solway.

The SAS public address system, currently in design development, will include a component for delivering verbal instructions in case of emergency, thus eliminating the less-effective alarm system in use at existing stations. With full-scale mock-ups, the architects are now exploring platform-edge and mezzanine-level "service carriers" that would house the system, along with lighting, closed-circuit TV cameras, and



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cabling, into canopies. These overhead elements will allow contractors to avoid embedding electrical conduit in concrete, thus keeping this critical station infrastructure accessible for maintenance, explains Griffin.

In all aspects of design development, the architects are guided by 12 design principles that consider the interface between architecture and the myriad engineering, life-safety, and urban-design requirements. For instance, one of the design principles calls for a balance between station context and essential "elements of continuity." These are "the physical elements that have a systemwide reference." They are standard planning devices, such as structural grids and modular components, which can be repeated in all the stations to a degree that is practical. Whereas continuity is important to passenger orientation and comfort, it is critical to maintaining structures that are designed and built to perform well for 100 years. Building services, systems, lighting, and graphics must be integrated identically in each station, and the repetition of modular components allows efficient repair and replacement. The office walls of the DMJM Harris/Arup joint venture are plastered with studies showing this integration and design evolution to date.

In addition to the new subway stations, DMJM Harris is designing several ancillary, multistoried structures at street level, which will house exhaust fans and other ventilation equipment serving individual stations and tunnels. The acoustical and mechanical engineers are working to ensure that fans, cooling towers, and handling units are designed with the necessary sound attenuation to reduce noise emission to the exterior and surrounding buildings. These measures become architectural concerns because the mitigation strategies can affect material choice and facade design. As preliminary renderings show, these unoccupied structures will receive the same level of architectural detailing as the subway stations, since their presence will similarly define the surrounding urban fabric.

Sudhir Jambhekar, AIA, principal at New York City–based FXFOWLE Architects, worked on the SAS for three years. Although the firm is no longer involved, the experience led Jambhekar to develop an argument regarding the architect's role in large infrastructure projects, such as the SAS. "Architects assume that there isn't much design opportunity in these building types, but that's just not the case," he insists.

Jambhekar acknowledges that organizational and management hierarchies can be more complicated than those applied to comparable commissions, such as highly specialized institutional projects. Infrastructure projects can take two or three times longer to complete, requiring a commitment of a decade or longer. Architects often work within large teams, which, in addition to the typical consultants, can include a maze of government agencies and regulatory commissions. However, in spite of these challenges, he makes a strong case for architects' involvement: "Infrastructure influences quality-of-life issues more than people think, which is why we should feel obligated to participate." ■

AIA/ARCHITECTURAL RECORD CONTINUING EDUCATION

INSTRUCTIONS

- **Read the article "Miracle on (and Under) Second Avenue" using the learning objectives provided.**
- **Complete the questions below, then fill in your answers on the next page.**
- **Fill out and submit the AIA/CES education reporting form on the next page or download the form at archrecord.construction.com to receive one AIA learning unit.**

QUESTIONS

1. The Second Avenue Subway will provide more access to what area?
  a. John F. Kennedy International Airport
  b. Central Park
  c. the East Side of Manhattan
  d. Long Island

2. Which of the following agencies or groups are the official clients of the Second Avenue Subway?
  a. the Federal Transit Administration and the Metropolitan Transit Authority
  b. the Federal Transit Administration and Manhattan East Side Alternatives
  c. the Metropolitan Transit Authority and New York City Transit
  d. Manhattan East Side Alternatives and New York City Transit

3. Because the Second Avenue Subway receives federal funding, all design decisions must meet the requirements of which?
  a. the Federal Transit Administration
  b. the National Environmental Policy Act
  c. the Manhattan East Side Alternatives Study
  d. the Federal Advisory Committee

4. The Final Environmental Impact Statement considers the potential effect of all except which?
  a. best-case scenarios
  b. noise and vibration
  c. roadway congestion
  d. social and economic conditions

5. The approved excavation technologies for the project are all except which?
  a. tunnel boring technology
  b. cut-and-cover
  c. mining
  d. water drilling

6. A boring machine usually causes little surface disruption, except when?
  a. the existing infrastructure is old
  b. the ground above is densely occupied
  c. the street is excavated to insert the machine
  d. it is used to bore through bedrock rather than soil

7. When tunnels are mined using the "drill-and-blast" method, explosives are detonated sequentially for short periods of time for which reason?
  a. to lessen the potential for ground vibration at nearby structures
  b. to pace the amount of rock to be removed by bulldozers
  c. to keep air flowing through the shafts
  d. to divide the excavation spoils equally among the individual conveyor cars

8. An earth-pressure-balance machine is used to perform which operation?
  a. bore through bedrock
  b. bore through soil
  c. remove spoils from the excavation site
  d. create curved sections of the subway line

9. The overhead "service carriers" that the architects are designing will incorporate which?
  a. a public address system
  b. lighting
  c. closed-circuit TV
  d. all of the above

10. DMJM Harris is designing multistory above-ground structures that will house which?
  a. offices for Metropolitan Transit Authority officials
  b. ticket vending machines
  c. exhaust fans and ventilation equipment
  d. maintenance equipment

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Program title: "Miracle on (and Under) Second Avenue," Architectural Record (08/07, page 159). 087EDIT1

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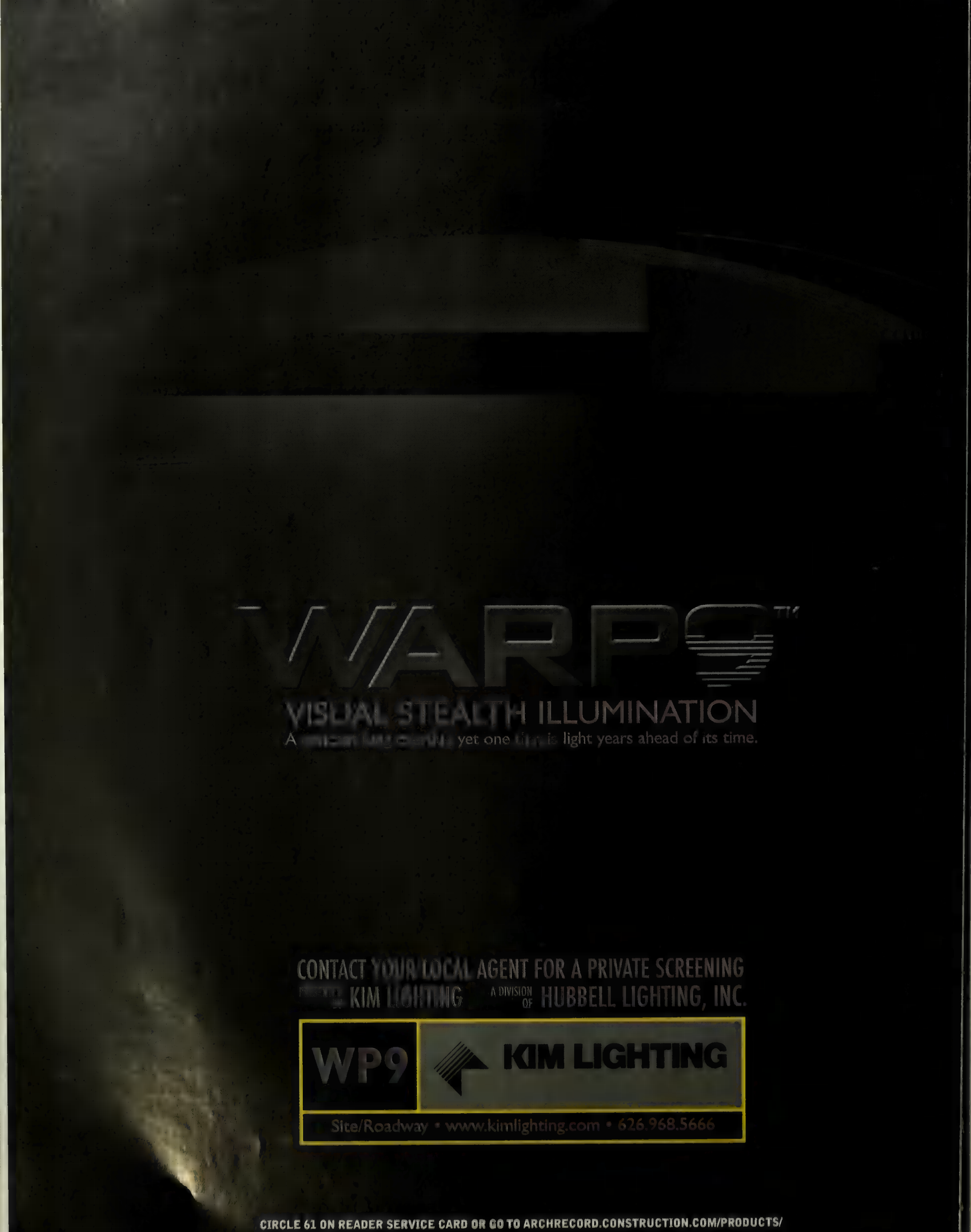

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Lighting

Designs that move bodies and imaginations

BRIEFS

Spring is awards season, and this year as usual the lighting-design industry honored its brightest accomplishments and most promising newcomers with a series of prizes. The International Association of Lighting Designers, for example, recognized 20 honorees at its annual International Lighting Design Award Winners program in May. The highest winner—recipient of the association's Radiance Award—was Karou Mende, of Tokyo-based Lighting Planners Associates, for the **Chino Cultural Complex**, in Nagano, Japan. The project is the world's first cultural facility that includes a library, concert hall, and gallery along with an existing train station.

As a counterpoint to the project wins, the Lightfair Innovation Awards teased out the best products from 139 entries. Top of the heap: the **ARC Keeper Arctic 175 HID Backup Ballast** from the Bodine Company, which earned Most Innovative Product of the Year. The product prevents lamp extinction during voltage disruptions by catching and maintaining the arc of one 175-to-200-watt, metal-halide pulse-start lamp for up to two minutes. The ORUS Roadway Luminaire from North Star Lighting, Luxeon Rebel from Philips Lumileds, and ALTO II T8 Lamps from Philips Lighting Company also won special honors for design and technical excellence. The Illuminating Engineering Society New York Section presented Cline Bettridge Bernstein Lighting Design with its Award of Excellence for **7 World Trade Center**, citing the firm's clever masking of the transformer walls at the building's base. New York City locals also paid attention to another June event, honoring the designers involved in an even more substantial Big Apple landmark: Kevin Adams won a Tony Award for best lighting design of a musical for *Spring Awakening*, a first-time use of CFLs on Broadway; Brian MacDevitt, Kenneth Posner, and Natasha Katz won best lighting design of a play for the Tom Stoppard trilogy *The Coast of Utopia*. *D.S.*

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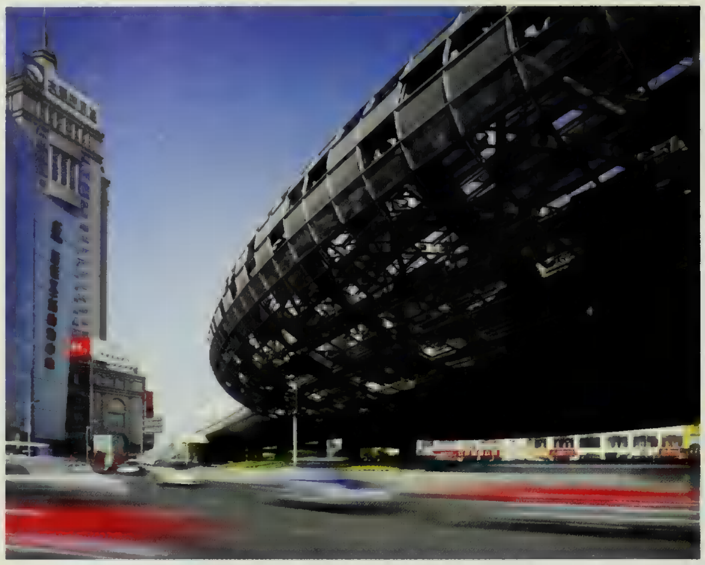
Sidewalks, plazas, highways, bridges: With a few exceptions, infrastructure usually plays the strong but silent type. But no longer are civic engineering works simply taking people from point *A* to point *B*. Designers of architectural lighting are redefining this necessary connective tissue with moments of poetry and delight.

For example, the developer of a Los Angeles apartment building called Met Lofts asked for a piece of art for the exterior of the building. The tech-savvy firm Electroland used the commission as an opportunity to inject a dose of fun and commentary into the streetscape, giving pedestrians control of the lighting sequence on the building's western elevation. It's a cheeky take on surveillance, an activity for the denizens of L.A.'s South Park neighborhood, and a call to animate the sidewalks of the car-centric city.

In the Yangpu District of Shanghai, China, artist Zhong Song deployed lighting design to invite pedestrians to enjoy Wu Jiao Plaza. But his work did not tackle a perceived problem so much as perform surgery on an open wound. A new highway overpass had effectively ruined the plaza, injecting a dark, threatening presence just as factory closures were siphoning people away from the area. By wrapping the overpass in a futuristic curved-metal skin embedded with LEDs (below left), and performing an extreme makeover on the plaza's other features, Zhong transformed the overpass from overbearing to engaging and encouraged Yangpu's remaining residents to repopulate the zone.

The Langeais Suspension Bridge has had no problem in attracting users. Tourists flock to the city, which sits on the banks of the Loire River in France, to visit its famous 15th-century château. As part of the bridge's reconstruction, acclaimed 32-year-old lighting designer Sylvain Bigot cast the bridge in a moody blue, accented by deep shadows and white light. The gestures underscore the bridge's architectural similarities to the château and bring all of Langeais into the tourist experience.

While their makers' motivations differ, these projects underscore infrastructure's artistic potential. As travel between destinations becomes its own event, transportation networks have employed striking new media to create provocative design. *David Sokol*



To reanimate a Shanghai neighborhood, **Zhong Song** wraps an obtrusive highway overpass in metal and light

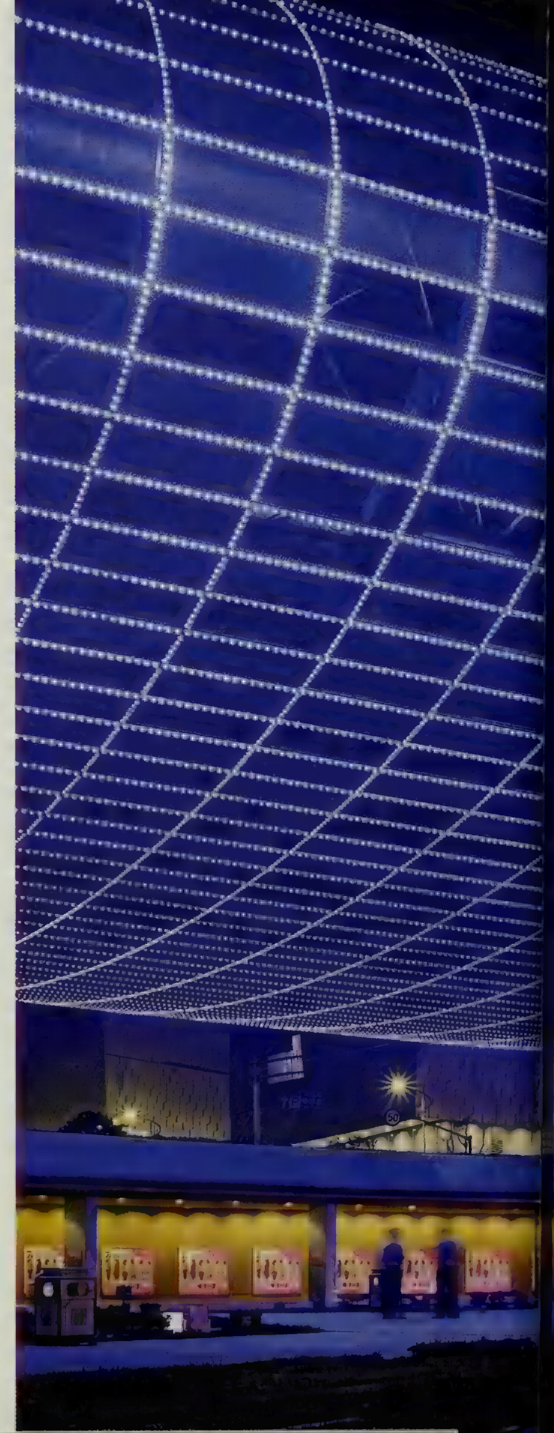
By Andrew Yang

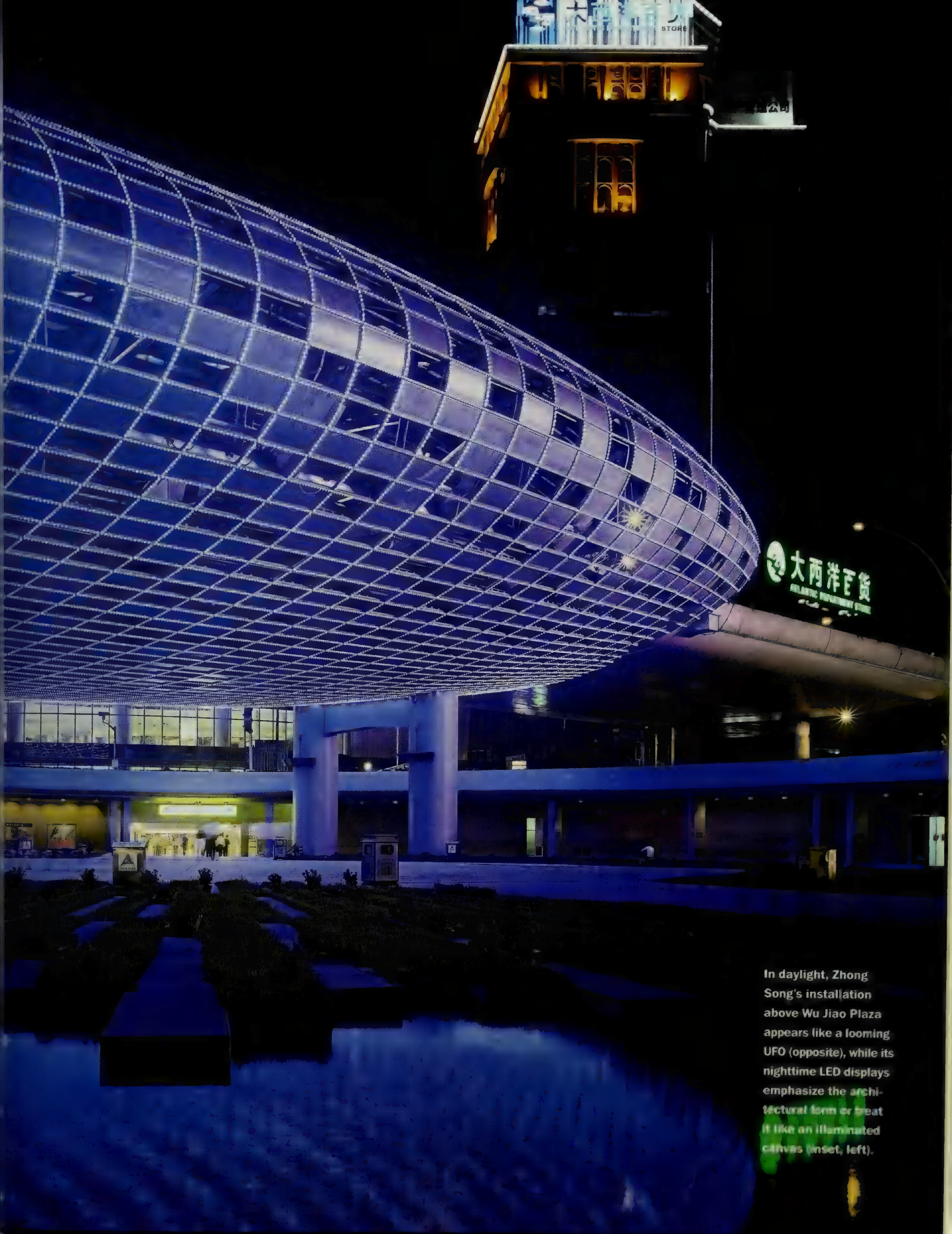
It's never easy to make transportation infrastructure look good. In the United States, typical strategies include planting flowers within a rotary; erecting banal, noise-blocking barriers along freeways; and in many urban areas, doing nothing at all. But in China, at Wu Jiao Plaza in Shanghai's Yangpu District, the artist Zhong Song created an installation that dynamically melds architecture with lighting.

The Yangpu District was until recently a thriving manufacturing neighborhood. But around 2003, factories began abandoning the area for less-expensive industrial zones in the countryside. Though unrelated to the loss of manufacturing facilities, the city of Shanghai started constructing at about the same time a series of roadways to connect different districts. One such project included a new highway overpass bisecting the center of Yangpu and one of its main public spaces. The underbelly of the overpass cast a dark shadow (literally and metaphorically) on Wu Jiao Plaza, a formerly inviting gathering place.

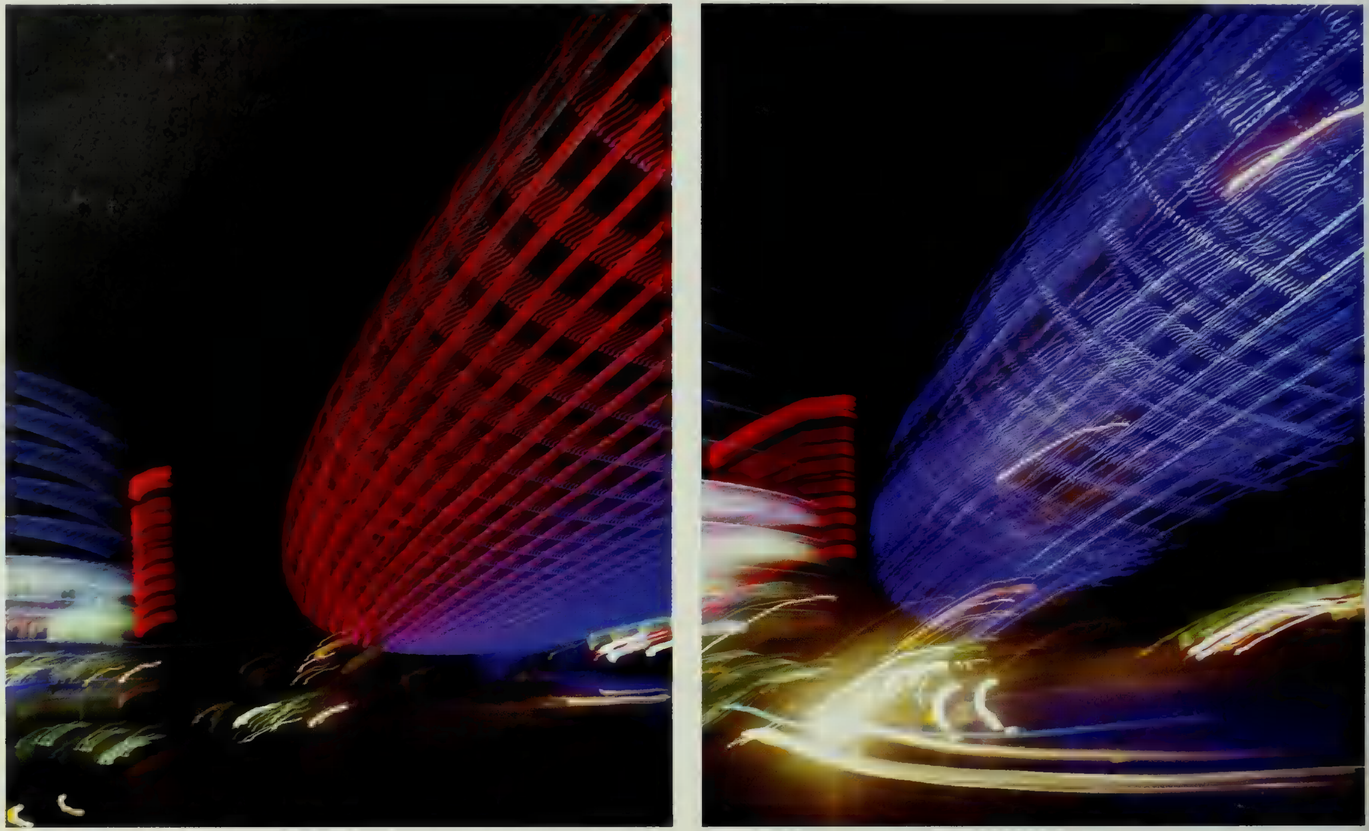
Andrew Yang is a design journalist currently based in Shanghai. He serves as the design consultant for 100% Design Shanghai, the third edition of the annual furniture and interiors fair that also takes place in London and Tokyo.

Project: *Wu Jiao Plaza, Yangpu District, Shanghai, China*
Design: *Zhong Song Design Consultancy*
Architect: *Jing Ye Design and Research Institute*
Lighting: *Lai En Lighting Consultants*





In daylight, Zhong Song's installation above Wu Jiao Plaza appears like a looming UFO (opposite), while its nighttime LED displays emphasize the architectural form or treat it like an illuminated canvas (inset, left).



Though inspired by the way his installation reflects changes in daylight, Zhong Song's color-changing LEDs mimic the lights of nighttime urban activity (above).

To rectify the situation, local government officials decided to spruce up the intrusion. So in 2003, they hired Zhong to design a sculpture for Wu Jiao Plaza based in part on a piece, *Light of the East*, that he had completed in Pudong in 2000 with the artist Chen Yifei. One of Zhong's large, architectural-scale sculptures, *Light of the East* is a giant sundial made of a needle piercing a disc. But for Yangpu, he proposed that the government reinvent the urban fabric of the area, not just add another monument to the plaza.

The site is not far from Fudan University and several colleges, explains Zhong. "The municipal government wanted to make it an active space, but the highway overpass splits it in two," he says. "The idea was to bring it back to the way it was"—a place of pedestrian movement and outdoor activities.

Zhong engaged the site's knotty condition. "There are five roads leading to the plaza, and then a highway overpass on top, and a subway line underneath," he continues. "There are three different levels of infrastructure, creating a complex fabric that affects the pedestrian nature of the area. So, the question was, how do we add the pedestrian element so people will animate the five different streets?"

To accomplish this task, the artist enveloped the 105-foot-wide overpass in an oval steel frame clad with aluminum. Measuring 348 feet long, 157 feet wide, and 82 feet tall, it cloaks cars speeding along the overpass.

"The government asked me to do a sculpture initially," Zhong says. "But I told them we need to do it differently. So we made it look like a spaceship, a UFO," he explains. The steel-and-aluminum armature glistens in sunlight, while its skin appears to change from gold to silver under a cloudy sky. Inspired by these shifts, Zhong devised a system of Erco-controlled LEDs, arranged in a grid around the structure, and choreographed them to project an array of changing colors at night. Eventually, artists will be invited to program different lighting environments into and onto the installation's large curved surface.

By making the underside of the overpass a more attractive space for pedestrians, Zhong hopes to draw visitors into the plaza. To activate this interstitial zone, he also relandscaped pedestrian circulation, removing unnecessary obstructions such as poorly placed trees and planters, and regulating print advertisements so they are less graphically prominent. His office also redesigned subway entrances so they are glass-encased steel tubes shooting out diagonally from beneath the ground, which echoes the sci-fi character of the installation suspended above the plaza.

The scope of the project is expansive and continues to grow. The plaza hosts a temporary stage with bleachers for concerts and other occasions, for example. "We hope this will be a space for people," Zhong says. Future plans include projecting light onto adjacent buildings and programming it to accompany the event of the moment. That way, Zhong adds, "The people activate the plaza and it becomes a real social space."

Emphasizing the effects achieved, not the tools used, is part of Zhong's approach to art. As he notes, "When we watch a movie, it does not matter what movie projector is used. What we're watching is more important." ■

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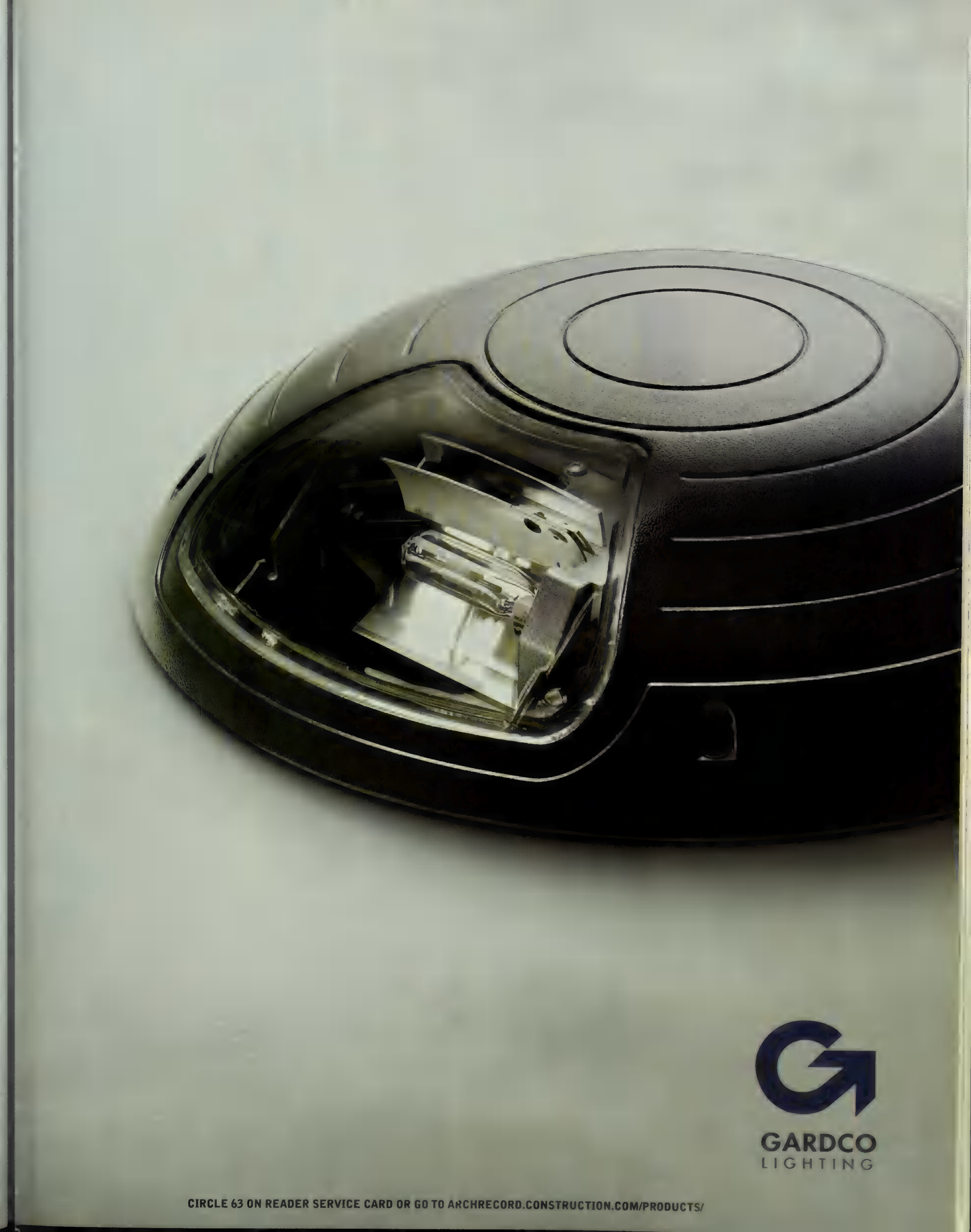

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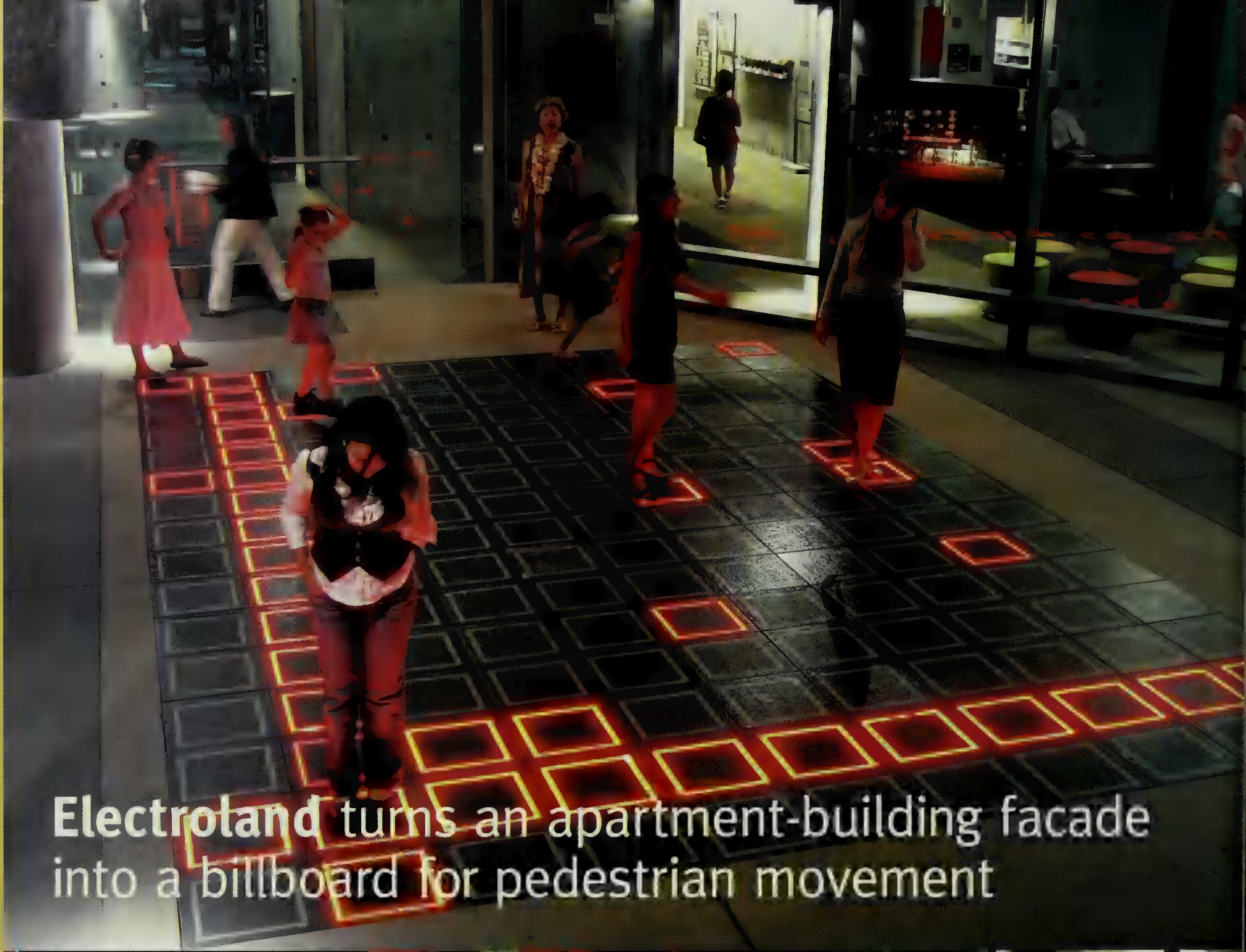
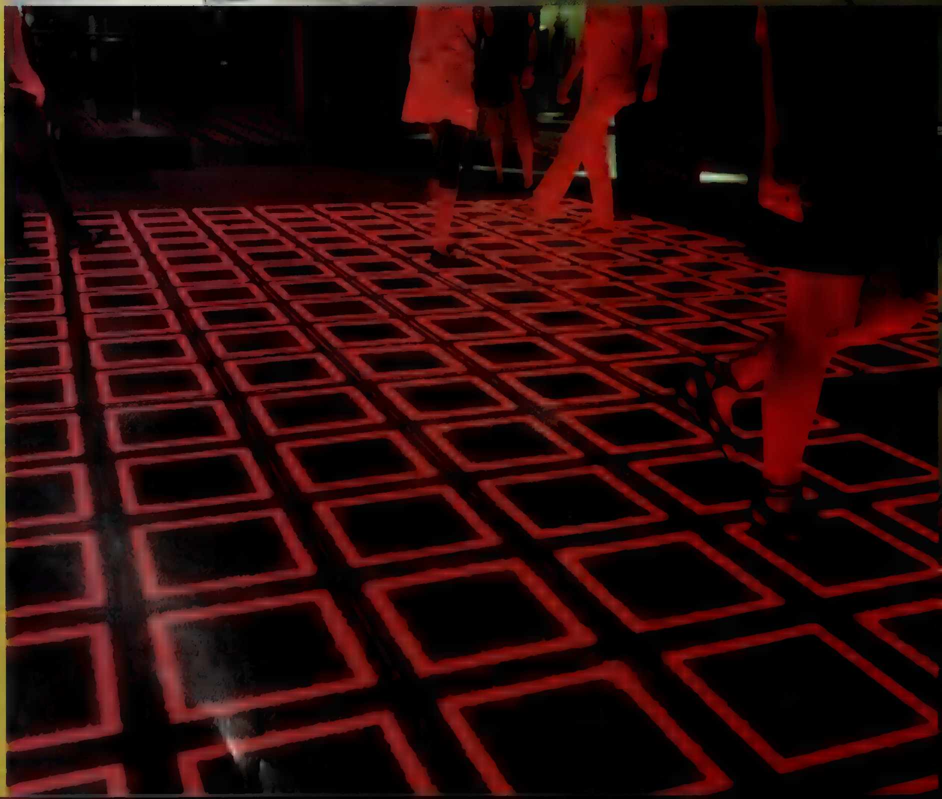
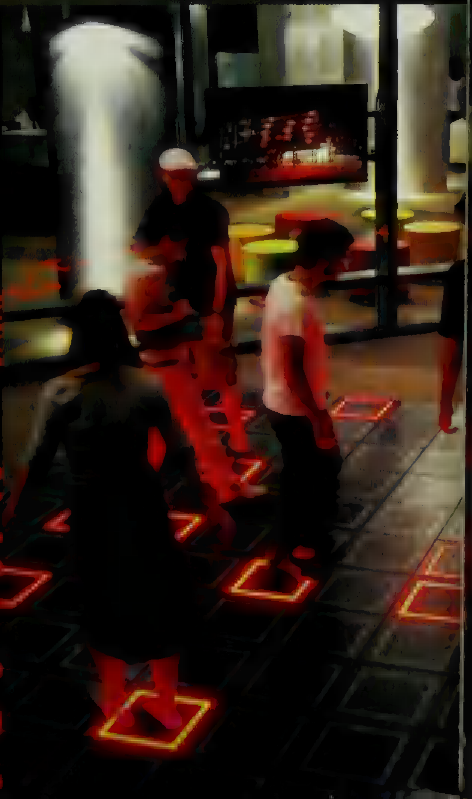
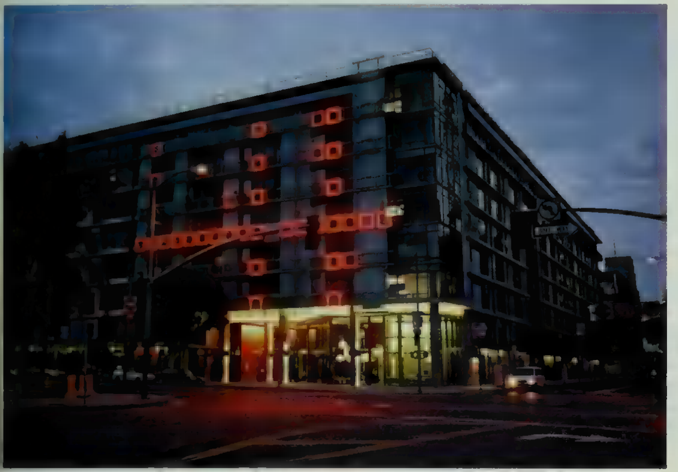


Electroland turns an apartment-building facade into a billboard for pedestrian movement





As pedestrians approach the Met Lofts lobby, they interact with an illuminated sidewalk matrix (opposite). A grid of LED squares on the building's west facade recreates lighting patterns people produce (below) or random designs (below right).



By David Sokol

To the designers at the Los Angeles–based firm Electroland, modern life is a video game. Partner Damon Seeley, who founded the firm with Cameron McNall, expands on the metaphor: "There's a vast network of electronic information surrounding us, and we're navigating and participating in it all the time."

That viewpoint has informed the work of Electroland since its founding in 2001, when McNall and Seeley collaborated on the installa-ion *RGB* for the reopening of SCI-Arc. For that project, they mounted ights in 81 windows of the architecture school's new home, a converted rain depot, and people could illuminate them by calling a particular umber on their cell phones and using their keypads to control the equence of red, green, and blue. The communication device effectively ecame a joystick for controlling architectural and urban space.

The response to *RGB* was overwhelmingly positive, Seeley emembers, and the work grabbed the attention of local real estate devel-pers in particular. "For them, it's really about enhancing the excitement f the place they are trying to make," Seeley says. Among Electroland's uitors was Forest City, which invited the firm to compete for a Percent or Art project for Met Lofts, a seven-story apartment building designed y architecture firm Johnson Fain and planned for the South Park neigh-orhood of Los Angeles.

Electroland won the commission in October 2002, and its work, ntitled EnterActive, was completed concurrently with the building in 2006. he project offers a fresh translation of McNall and Seeley's perception of e video-game world: Instead of cell phones, EnterActive uses passersby emselves, transforming them into actors in an electronic game board.

The installation comprises two main elements. The first is an rray of electronic tiles that sits just outside the entrance to the Met Lofts bby and serves as the interface with pedestrians. Electroland set a riser stem into the surrounding concrete, then placed a grid of 176 16-inch-uare tiles within it. Each tile is a sandwich of fritted glass and plastic at holds 96 red LEDs and has four compression sensors and a microcomputer on its underside. When someone steps on a tile, the sensors and microcomputer send data to a master computer located in the lobby. That computer in turn signals the tile to illuminate. A pedestrian can stroll across the array like Michael Jackson singing "Billie Jean," the sidewalk lighting up with each movement.

Or he or she could choose to land on a "trigger tile," a randomly placed illuminated square that, when touched, initiates one of five patterns (such as a twinkling field or a spinning circle of light) that decorate the entire matrix. "The master computer looks at the arrangement of people on the tiles holistically, then decides which illuminated tiles should be turned off," Seeley explains. The result is a playful give-and-take between man and machine: A participant can "push" the twinkling field out of his way, leaving only darkened tiles in his wake, or he can discover a circle of light spinning around him.

Besides feeding back to the tile array, the master computer links to EnterActive's second major component: a grid of illuminated squares mounted on the building's west elevation. While the facade display is more truncated than the sidewalk array, Electroland's proprietary software translates the game board's human movements and computerized patterns into supergraphics flashing on the side of the apartment building. Seeley says that players detect the correlation between themselves and the building face, and understand their influence on the urban landscape. Observers do, too, because "there's something very human about the motion [on the illuminated grid]," he says, "of the way people start and stop and hopskotch on it. It's very hard to fake that with a computer animation or preprogrammed playback."

Seeley adds that he and McNall also took care to integrate EnterActive with its host. The facade installation, for example, echoes the fenestration of Johnson Fain's design. Even more pragmatically, the building includes all the necessary conduit for connecting the installation to the master computer, and each floor contains a connection point for linking the exterior wires to the interior conduit. The vertical grid itself comprises squares of 168 LEDs mounted behind acrylic windows and framed by aluminum extrusions, which slide into bracket-mounted rails.

EnterActive is enjoying the same reception as its SCI-Arc forebear. As people pour out from an evening event at the nearby Staples Center, for example, the installation inevitably experiences a flurry of activity. While the artwork "gets back to this idea of a vast network of information out there," Seeley says, "our motivations are really about creating fantastic experiences for people," especially in Los Angeles, where public spaces could benefit from a sense of whimsy and play.

Playful for the pedestrians, sure. But isn't EnterActive a recipe for insomnia for Met Lofts' residents? Electroland solved that, too. Although the lumen output of the facade-mounted LEDS is five times that of the sidewalk interface, the aluminum extrusions holding them in place shield the diodes' red shine from apartment dwellers' eyes. ■

avid Sokol is a freelance writer and frequent contributor to RECORD.

ONLINE: To view additional images, see a complete list of sources, and to rate this project, go to ***architecturalrecord.com/lighting/***. Submit your lighting project to ***construction.com/community/gallerylist.aspx***.

Project: *EnterActive, Los Angeles*
Installation designer: *Electroland*
Programming: *Kevin Tanaka*
Architect: *Johnson Fain Partners*

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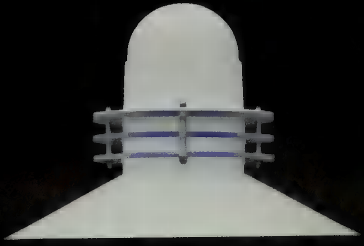

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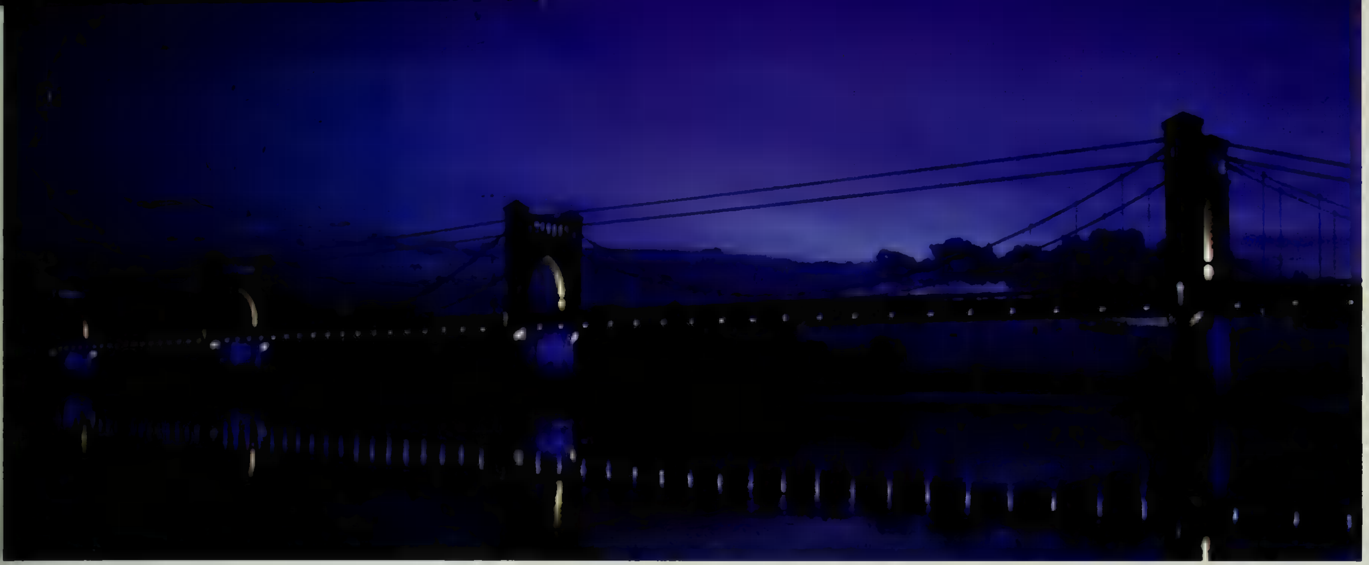

For a medieval French city, Sylvain Bigot dresses the **Langeais Suspension Bridge** in majestic blue light

By Robert Such

Sylvain Bigot jokes, "I'm the bridge lighting designer." Bigot, principal of Neo Light, a firm in Joué-lès-Tours, France, has illuminated the Saint Satur Viaduct and the Pont de Montrichard, for which he was awarded first prize in the 2004 Light Competition, which is overseen by the French Ministry of Culture. This year, he earned the same honor with his scheme for the Langeais Suspension Bridge over the Loire River.

A bridge has connected the French town of Langeais to the nunicipality of Chapelle-aux-Naux since 1849. Its current incarnation ias spanned the Loire River since 1950, yet recent reconstruction vork was required to correct problems with the structure. Original ouilders Baudin-Châteauneuf replaced structural elements in the deck ınd the suspension cables in 2005. Concurrently, government officials ıeld an open competition to implement a lighting scheme, for which 3igot proposed blue atmospheric lighting and bold shadows to highlight he bridge's form and texture. He won the job in May 2006, and realized he design six months later.

Bigot negotiated two inspirations in his work. In response to he Loire's calmness, he determined to create "a very quiet image of the ıridge," he says. The architecture of the structure, itself inspired by the enowned 15th-century Château de Langeais, also influenced his direcon. Four pointed arches, for example, are a direct reference to the hâteau and provide an impressive entrance to the town. "Going through ıe entry," Bigot says, "is like going through the château." His choice of redominantly blue lighting—"the color of royalty"—reinforces the ffect, and mimics the blue of the water at sunrise. To pick out the five ecks suspended between the bridge's four reinforced-concrete towers, igot installed 150 blue, single-watt LEDs on the decks' sides.

White light crisply outlines the Langeais Suspension Bridge, while blue emphasizes its bulk.

At the top of each tower, a gallery of narrow arches is lit with metal-halide lamps equipped with blue filters. Suspension cables, however, pick up only blue spill from light hitting the gallery arches; Bigot explains that highlighting the cables would have been too commonplace a gesture, or "déjà vu."

Up-down metal-halide LED luminaires placed 11 feet above the roadway act as street lighting and also brighten each tower archway. In similar double duty, Bigot fixed white LED floods to the underside of the deck to accent the turrets' circular bases, and used a narrow-beam white uplight to graze the turret wall, revealing wall texture. Wide-beam metal halides underneath the deck bathe the bridge supports in blue light.

Fear of déjà vu propelled Bigot to add a temporal finesse to the bridge. During the week, a timer switches off the white turret lights. Full illumination on Saturdays and Sundays breaks the visual monotony and welcomes Langeais's numerous weekend visitors.

Or, perhaps, educates them: Bigot calls his design for the Langeais "a dramatic and poetic scene," which he attributes to its play of shadows and light. "I like the light," he says, "but I prefer the shadow. It's necessary to understand the volumes and the forms." ■

Robert Such writes about and photographs design for publications around the world.

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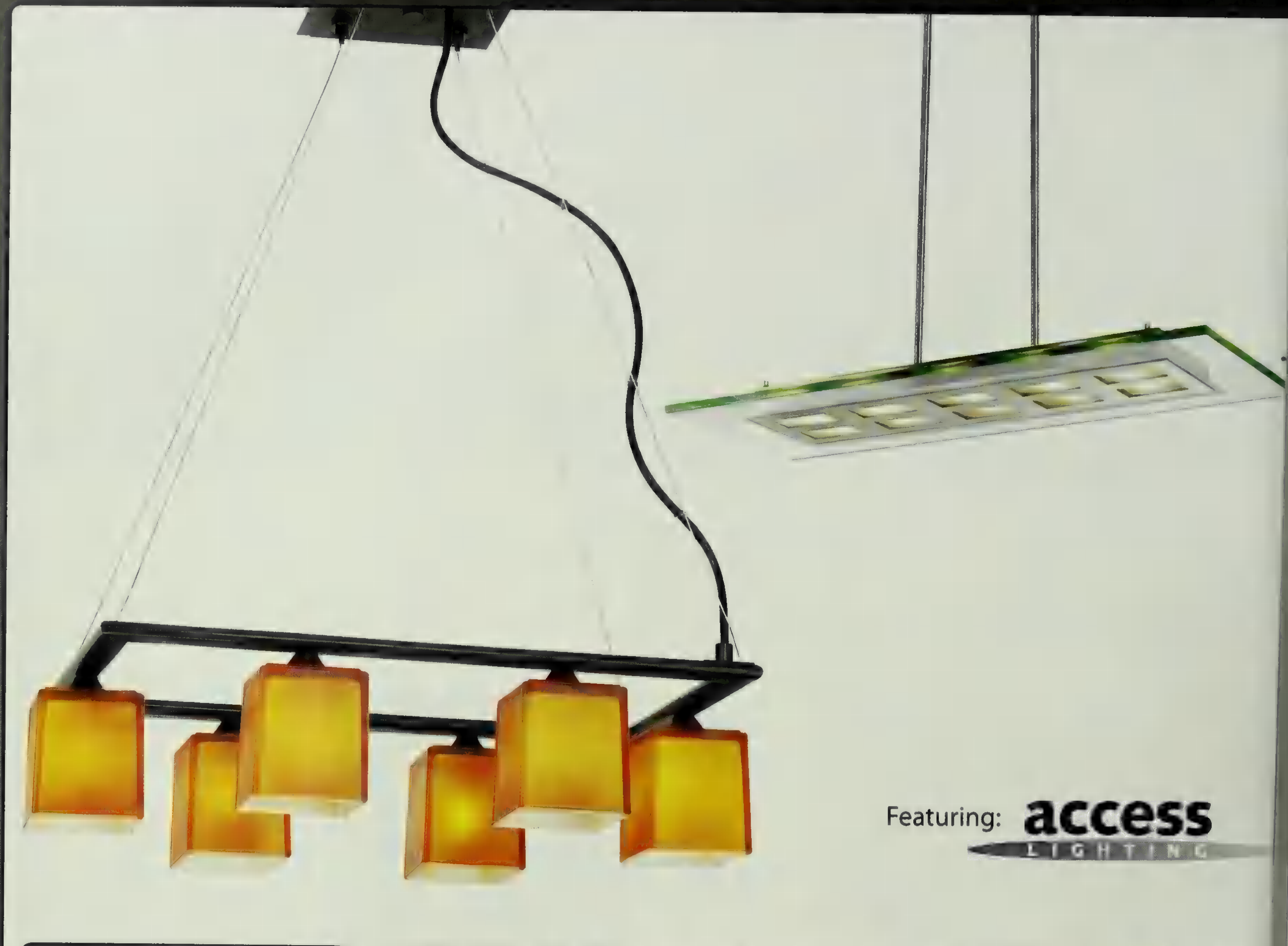
Project: *Langeais Suspension Bridge, France*
Client: *Conseil Général d'Indre et Loire*
Lighting: *Neo Light*
Contractor: *Citéos*



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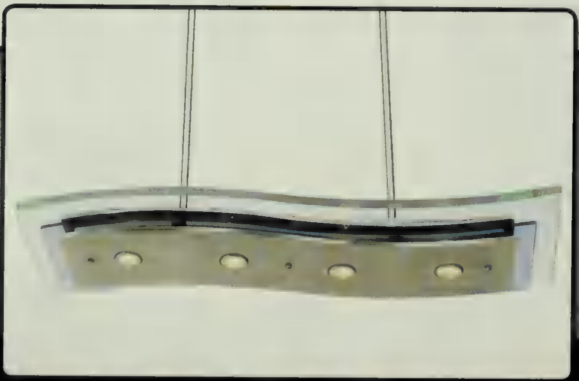

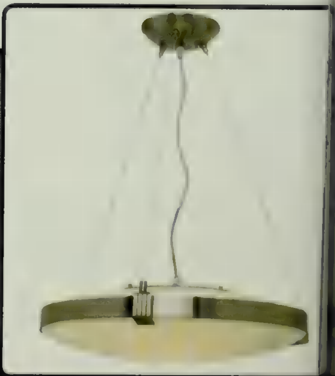

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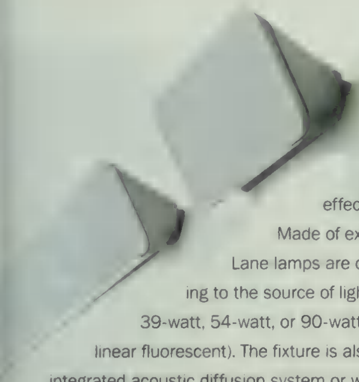
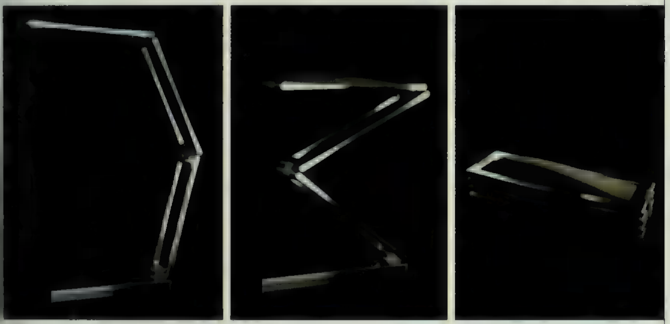
Lighting Products

This year marked the debut of the **biennial Euroluce exhibition** at the new Rho-Pero fairgrounds in Milan. Exhibitors made the most of the occasion **by creating fantastic booths** that put clever and often futuristic fixtures center stage. *Rita Catinella Orrell*



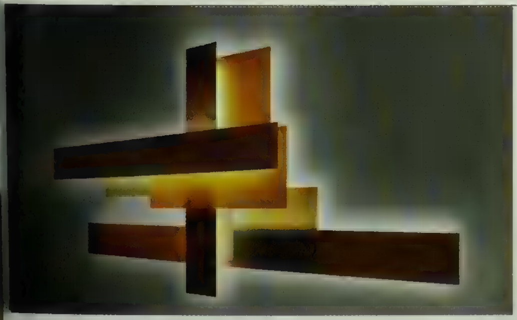
◄ Lane of light

Lane, designed by the Swiss-Argentinean designer Alfredo Häberli, is a new family of linear lamps that creates a soft, diffused lighting effect upward and downward on the wall. Made of extruded and die-cast aluminum, Lane lamps are designed in various lengths according to the source of light they contain (150-watt halogen, 39-watt, 54-watt, or 90-watt T5 linear fluorescent, or 54-watt T5 linear fluorescent). The fixture is also available in a version with an integrated acoustic diffusion system or with two LED spots for direct light for reading. Luceplan, New York City. www.luceplan.com **CIRCLE 209**



▲ Missing link

In addition to a new fixture by Foster+Partners, Nemo (the lighting brand of Poltrona Frau Group) introduced the Chain desk lamp by Ilaria Marelli. The easily foldable amp offers widespread LED illumination, the intensity of which can be regulated by a stroke of a finger. With a body and base of aluminum and joints made of fiber-strengthened plastic, Chain is available in a polished or pearl white aluminum finish. The light measures 21.7" x 27.5" when fully open (left) and 2.75" x 10.6" when closed right). Illuminating Experiences, Highland Park, N.J. www.nemo.cassina.it **CIRCLE 211**



Fields of light

ields, designed by Vicente Garcia Jimenez, was inspired by the aerial panorama of ne fields in the designer's homeland of Mancha, Spain. The lamp is composed of hite/ivory or red/orange methacrylate and aluminum sheets that diffuse the light nd create a range of lighting effects on the wall. Fields is ideal for illuminating oth large and small areas, according to the number of elements used. Lightology, hicago. www.foscarini.com.it **CIRCLE 214**

◄ Secret garden

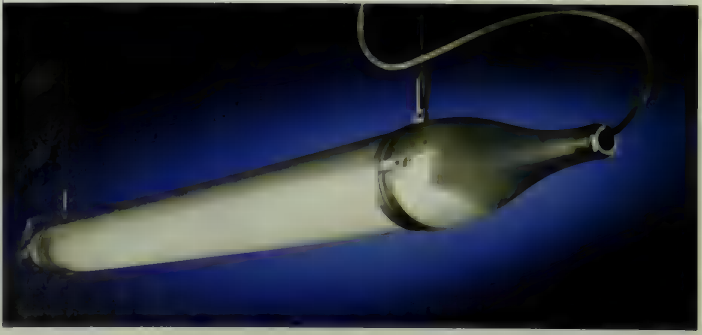
The Skygarden pendant, designed by Marcel Wanders for Flos, was inspired by an antique decorated plaster ceiling in the designer's former home that he literally took with him when he moved. The lamp features a plaster body with a "hidden" textured decorative pattern on the inside. The exterior is finished in opal gold, or matte white, black, or rust paint. Skygarden is available in 35" and 24" sizes in 250-watts and 150-watts, respectively. Flos USA, Huntington Station, N.Y. www.flos.com **CIRCLE 210**

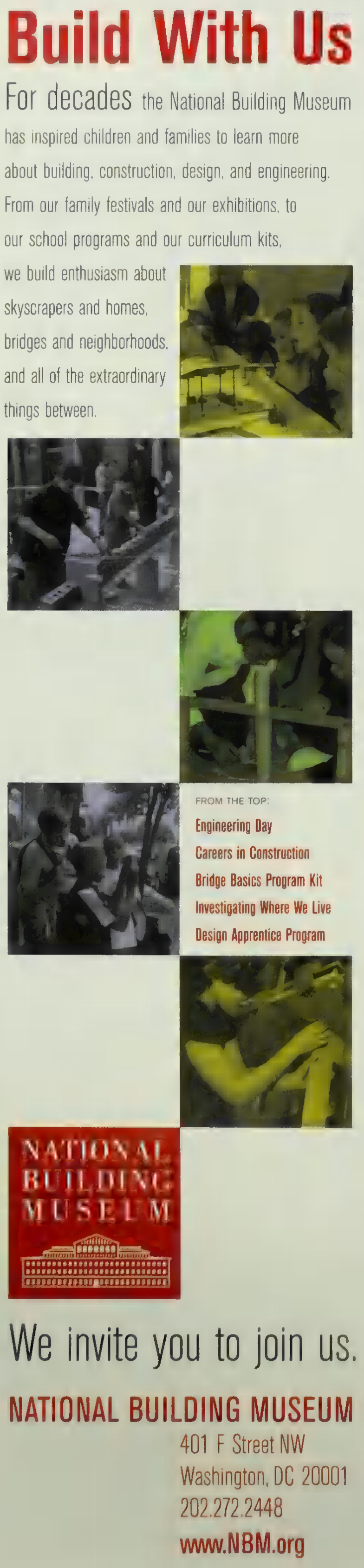
► Bioluminescence

Flora, designed by the London-based architecture and design firm Future Systems, is an organic interpretation of the traditional arch floor lamp. The lightness of the lamp's polished aluminum body is made possible by the latest hydroforming technology used for bicycles and racing equipment. An additional component frees the lamp from the base, allowing it to be installed on any horizontal surface. A diffuser in opal blown glass produces a soft light source. FontanaArte, New York City. www.fontanaarte.it **CIRCLE 212**

▼ Flexible tubular fixture

Initially designed as a lighting solution for subways, stations, and parking lots, the tubular iSign fixture also works well in spaces ranging from offices to retail, including exterior-interior borderline installations. iSign is available in surface-mounted, wall-mounted, horizontal and vertical suspended versions, and with individual or double modules. The fluorescent T16 lamp comes with a polycarbonate exterior in 3" or 4.3" diameters, two lengths, and monolamp or bilamp versions, including an RGB version with DALI control gear. iGuzzini, Recanti, Italy. www.iguzzini.com **CIRCLE 213**





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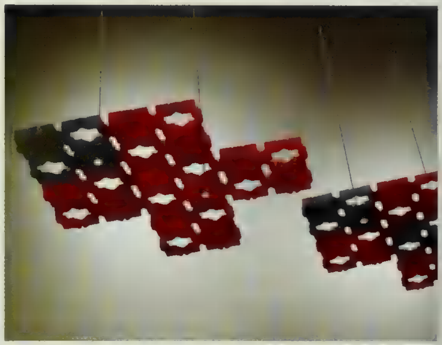
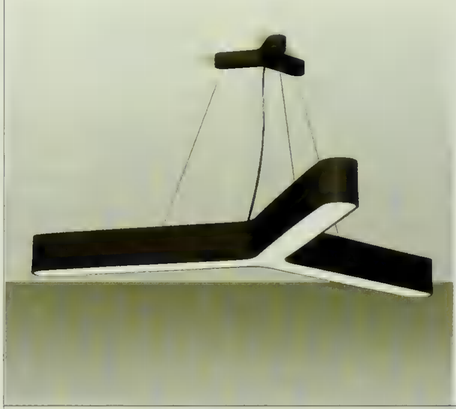
Lighting Products

While not every exhibitor displayed LEDs at this year's **Lightfair International**, held in New York City in early May, **the energy-efficient systems were the stars of the show**. Below we highlight both LED and non-LED standouts. *R.C.O.*

► Modular mindset

Marrakesh is a new modular LED lighting system that is ready to ship from Mindspring. Inspired by Mediterranean Art, the modularity of the energy-efficient system allows for ease of assembly and artistic freedom. An unlimited number of modules can be combined, giving the designer total flexibility in terms of size and shape; for example, stacking two completed units can create 3D designs. The completed unit can be suspended from the ceiling or wall or be incorporated into the flooring. Mindspring, Taipei, Taiwan. www.mindspring-lighting.com **CIRCLE 215**



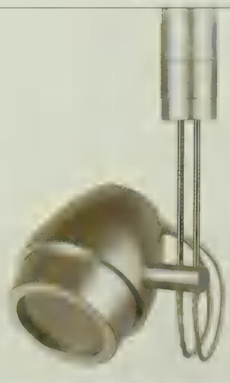


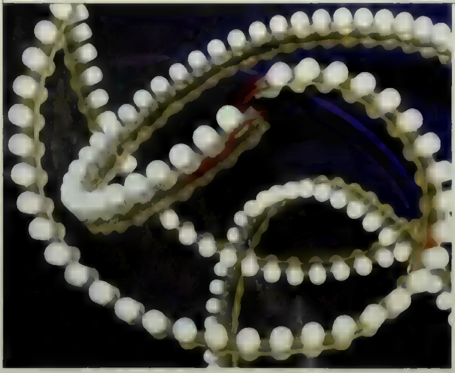
◄ Gears of light

The three-armed Gear 3 fixture, designed by Xenon Architectural Lighting and Carsten Kiselowsky, works well solo or in a series. The light features an aluminum body, a white or gray finish, and a satin-finished acrylic cover. Three 14-watt dimmable lamps provide a gentle, even illumination of the surrounding area, while the three-point cable suspension and the transparent 79"-long power cable make adjustments simple and flexible. Xenon Light, New York City. www.xal.com **CIRCLE 216**

► Small profile track

Tangent is the smallest profile line-voltage track-lighting system on the market, according to Lightolier. Tangent combines extruded aluminum and clear polycarbonate into a low-profile track system that utilizes low voltage MR16 and T4 bipin lamps, as well as line-voltage ES16 and G9 lamps. Ideal for commercial, retail, and residential applications, Tangent can be used in straight run arrangements or bent into architectural curves. Unlike other systems, Tangent's "side-by-side" busbar design allows the track to be surface-mounted flush to ceilings and walls. Lightolier, Fall River, Mass. www.lightolier.com **CIRCLE 217**





◄ Edgy new LED modules

Linearlight Multi Flex LED modules are ideal for edge lighting transparent materials and provide a solution for precise backlighting of complex contours. The modules have a service life of 50,000 hours and provide an alternative choice for indoor or outdoor linear applications such as cove lighting, refrigeration cases, and pathway marking. The LEDs are also suited for lifesaving/rescue sign lights and commercial signs, as well as marking contours such as escape routes, borders, and stairs. Osram Sylvania, Danvers, Mass. www.sylvania.com **CIRCLE 218**

Versatility

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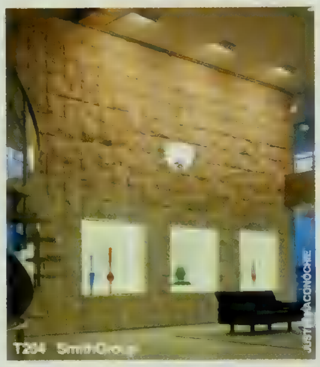

T204 SmithGroup

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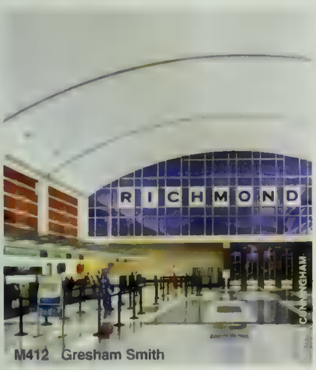

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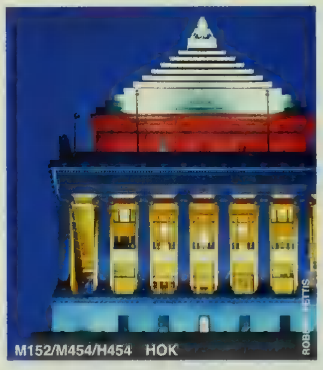

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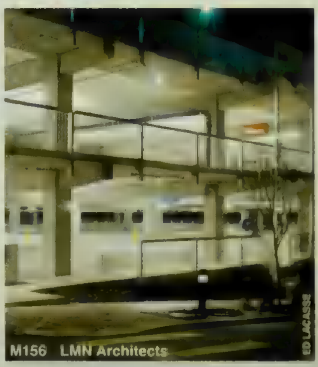

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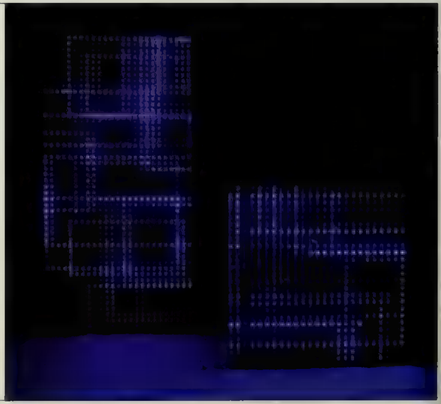
Lighting Products Lightfair International

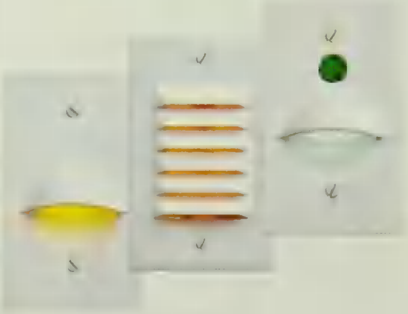
► Finding the way in the dark

At the show, Philips launched a range of LED fixtures including a Linear luminaire (above) that can illuminate the facades and surfaces of buildings, bridges, monuments, and other structures with curtains of light. With 55 to 65 lumens of light output, StumbleLight (right) is a motion-activated night guiding light designed to turn on when a hotel guest steps out of bed, preventing the need to turn on bright room lighting that could disrupt a full night's sleep. Philips, Somerset, N.J. www.philips.com **CIRCLE 219**

► LED panel displays

The LC series is a semitransparent, modular system of LED panels, ideal for displaying film, digital images, and graphics for stage, TV studio, and commercial applications. The extremely bright units offer true RGB possibilities and feature a calibration system that ensures output is always balanced and uniform. The 39.4"-long system is 4.3" wide and comes in a 39½" or 79" heights. A Genlock feature prevents light-flicker in TV applications, and units can be evenly joined for a seamless image. Martin Architectural, Sunrise, Fla. www.martinarchitectural.com **CIRCLE 220**



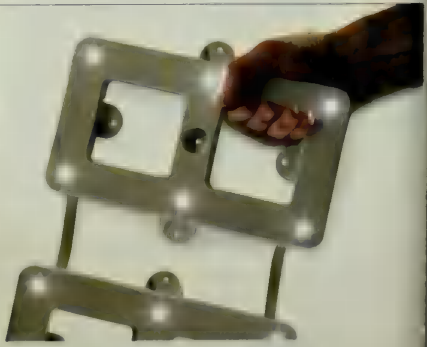


◄ Health-care chart/reading lights

Circadian LED Series is a new family of LED nightlights and chart/reading lights from Cooper Lighting that offer an energy-efficient, low-glare solution for aiding night-time navigation. The night-lights feature white, red, or amber LEDs, that bring low-level illumination to small areas without disturbing sleep. Recent studies have found that these colors can complement a person's circadian rhythm, says the manufacturer. Cooper Lighting, Peachtree City, Ga. www.cooperlighting.com **CIRCLE 221**

► Quicker install for back lighting

The Tetra PowerGrid LED lighting system addresses the need to simplify and speed the installation of energy-efficient, high-brightness LEDs in large-scale back-lighting applications such as cabinet and box signs. The system features an easy-to-handle, interlinking module design. Lasting up to 50,000 hours, the system delivers four times the rated life of a standard T12 HO fluorescent systems (12,000 hour median life rating). Available prewired, it also consists of fewer parts than standard fluorescent systems. Lumination, Cleveland. www.led.com **CIRCLE 222**



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Manning Lighting Inc. Sheboygan, WI USA
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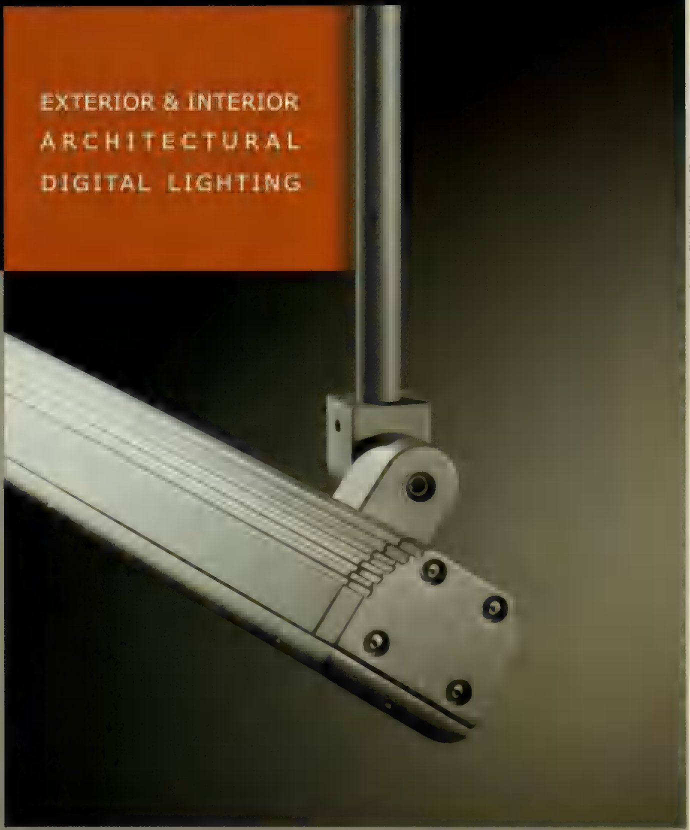

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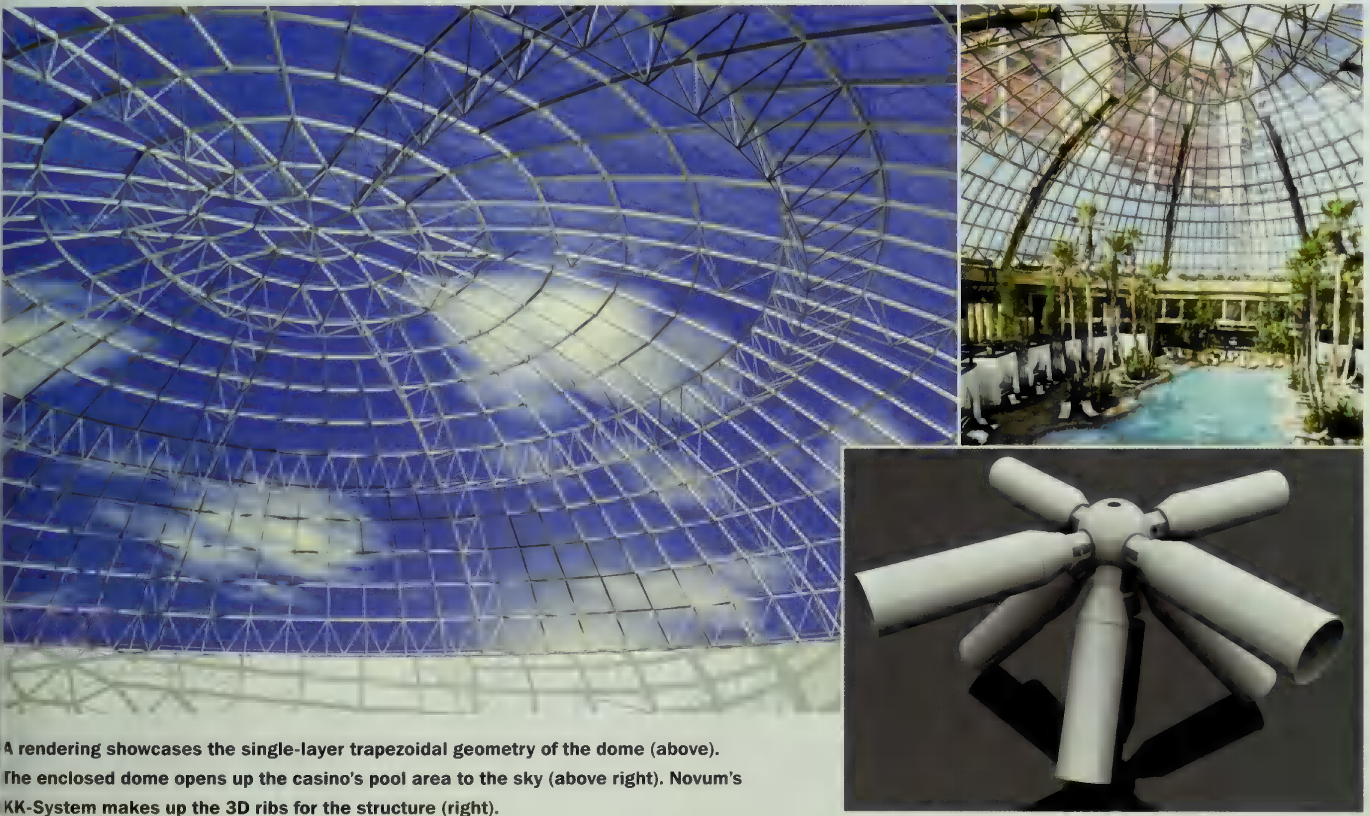
Product Focus Glass & Glazing

Our roundup this month includes **glass partition systems, a blast-resistant curtain wall, and slabs made from 100 percent recycled glass.** For the latest glass and glazing products and technologies, visit **GlassBuild America,** held this year from 9/10 to 9/12 in Atlanta. *Rita Catinella Orrell*



A rendering showcases the single-layer trapezoidal geometry of the dome (above). The enclosed dome opens up the casino's pool area to the sky (above right). Novum's KK-System makes up the 3D ribs for the structure (right).

Edge-clamp glass system and other technologies lighten up a casino's glass dome

Working with architectural structure and cladding specialists Novum Structures was a safe bet for the architects of an extension to Harrah's Casino and Resort in Atlantic City, New Jersey. Novum, a full-service specialty contractor with almost 1,300 projects under its belt n the U.S. alone, worked with project architects Friedmutter Group to engineer and design a dome above a pool area that would be as transparent and economical as possible, while working within a tight time frame. Located on the New Jersey coast, the casino's dome needed to meet codes for both hurricane-force winds and heavy snow loads. "I don't remember having to look at both in the same project before," says Novum president Ian Collins.

The resulting design is a 208'-wide and 50'-high dome that is nearly seamless to the sky above. Normally, such a large span would require a double-layer support structure with a heavy glass skylight system superimposed over the top. To avoid this situation, Novum used the glass structurally and utilized its BK-System of structural components which gives single-layer capability. The system was used along with Novum's KK-System, which makes up the eight ribs that support the trapezoidal glass system. The choice of trapezoidal rather than triangular glass helped the team keep the cost of the project down. Novum's ECG-System (edge-clamp glass) holds the glass at its edges with a minimum of clamping devices. Each glass panel was then sealed to adjoining panels with silicone caulk over a ¾" joint. "Most domes can really thrust outward when they are loaded, or you can contain that thrust within the dome itself, and that's what we did," says Collins. "The whole dome is basically supported at eight locations, which is quite something."

Novum's three main facilities collaborated together on the dome: It was engineered in Germany, fabricated and project-managed in Wisconsin, and a China facility provided the glazing system and some of the connectors. Harrah's opened the pool area Memorial Day weekend—15 months from conception to completion. The fast schedule, desired by the casino client, was only possible due to the close collaboration between all of the design partners, says Collins. "To do something that big in 15 months, you need to have a lot of cooperation." Novum Structures, Menomonee Falls, Wis. www.novumstructures.com

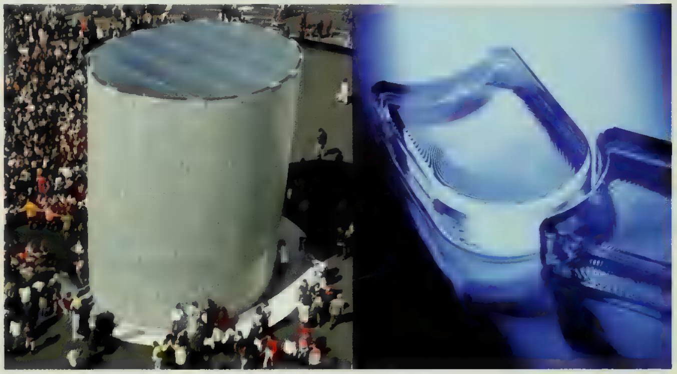
CIRCLE 223

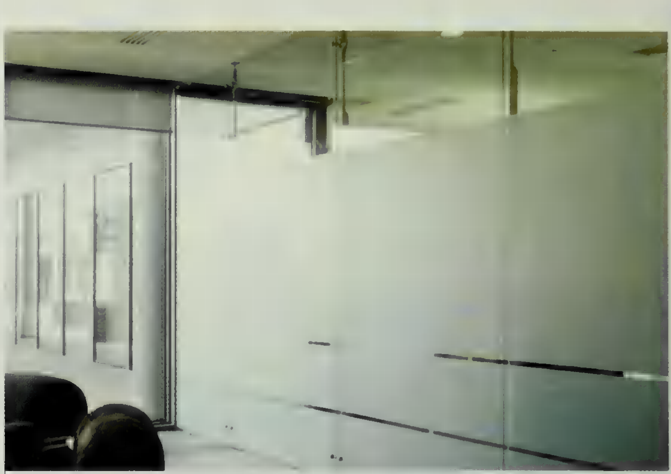
For more information, circle item numbers on Reader Service Card or go to **architecturalrecord.com/products/**.

Products Glass & Glazing

▼ Custom glass blocks clad memorial

Schott supplied the 15,600 glass blocks for the memorial that opened last March in Madrid (below) to pay tribute to the victims of the 2004 train bombings, the worst terrorist attack in Spain's history. Designed by Estudio FAM and made of borosilicate glass, the blocks were manufactured with curved ends, convex on one side, concave on the other (below right). This made it possible to bond them together in circular rows of blocks to create the monument's cylindrical shape. The tempered float glass on the monument's roof was also supplied by Schott. Schott N.A., Elmsford, N.Y. www.us.schott.com **CIRCLE 224**





▲ Movable glass partitions

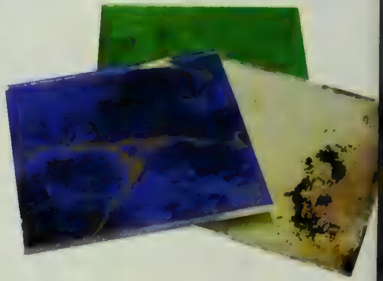
Luconi, a leading pressure-fit systems manufacturer, launched in the U.S. market at the beginning of the year. The Osso system (above) is characterized by an aluminum bar feature that has the double function of supporting glass panels and pieces of furniture. The extruded aluminum rod stands securely, either by putting pressure between the floor and ceiling or as a self-supported unit in some configurations. Luconi also offers Simple, a new double-glazed partition system that is fully sound-rated. Luconi USA, Beverly Hills, Calif. www.luconi-usa.com **CIRCLE 225**

► Blast-resistant curtains

For the $50 million renovation to the Zorinsky Federal Building in Omaha, Wausau Window and Wall Systems engineered and fabricated 49,305 square feet of blast-mitigating exterior curtain wall plus an additional 18,970 square feet of interior curtain wall for the building. The exterior utilizes Wausau's SuperWall system and four-sided factory-glazed unitized system, both with 1.25" protective glass. Wausau Window and Wall Systems, Wausau, Wis. www.wausauwindow.com **CIRCLE 226**

► Reflections on the past

Jockimo's new MirrorUnique specialty glass combines a centuries-old technique for antiquing mirrors with current technologies. All MirrorUnique products are handmade in North America by local artisans. Jockimo is able to supply custom colors, safety glass (either tempered or laminated), leaded and insulated panels, and custom fabrication (holes, notches, etc.). The glass is available in a range of thicknesses and sheet sizes. Jockimo, Newport Beach, Calif. www.jockimo.com **CIRCLE 227**



◄ Modular privacy screen

Screen is a new art-glass partition by renowned glass artist, designer, and manufacturer Joel Berman. Ideal for open spaces in hospitality, office, and residential applications, the modular partition is designed to stand vertically in rooms with 8' to 9' ceilings. The unit secures in place by adjusting the fixing plates tightly against the floor and ceiling like a mechanical brace or secured to floor joists and ceiling supports with screws. A single unit features nine panels in various textures. The system can be customized to support shelves or a flat-screen monitor. Joel Berman Glass Studios, Vancouver. www.jbermanglass.com **CIRCLE 228**

◄ Good to see you again

Available in 110" x 49" slabs, Bio-Glass is mad from 100 percent recycled glass and is recycla The material can be used for countertops or worktops, interior flooring, or walls. The glass has a multidimensional appearance and its c oring varies with direct and indirect light. The white and light-green slabs (left) are made of 100 percent postindustrial recycled content, while the brown slabs are made of 100 perc post-consumer recycled content. The material is offered in polished, honed, and nat finishes. Slabs are listed beginning at $50 per square foot. Coverings Etc, Miami. www.coveringsetc.com **CIRCLE 229**

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Product Briefs

▼ Another must-have pod

Created to ameliorate the hassles of transporting important drawings (both CAD and charcoal), The Drawing Pod tackles its competition from the side. The award-winning Pod utilizes a lengthwise system for opening and closing the tube to prevent rolled documents from unwinding against the Pod's inner walls, making them difficult to retrieve. Available in both compact and regular sizes, the tube can accommodate documents from 18" to 36" wide, and even features a self-adjusting shoulder strap to ensure an ergonomic fit. From Concentrate, Cambridge, Mass. www.from-concentrate.com **CIRCLE 230**

► Interior and exterior panels

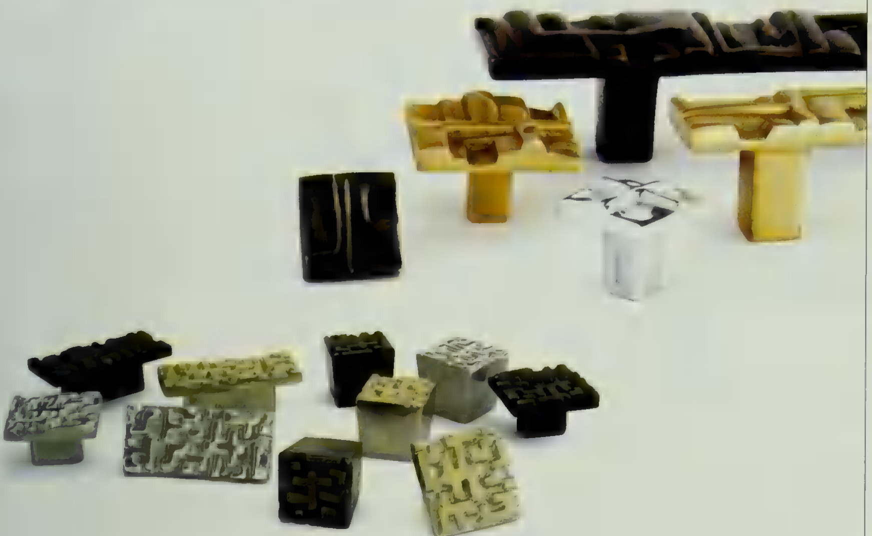
Trespa's durable panels are ideal for cladding systems with highly customizable color choices. Akin to hardwood in terms of stability, the panels are created using environmentally friendly thermosetting resin reinforced with 70 percent wood fibers under high pressure and temperature. The result is a nonporous composite panel available in an extraordinary spectrum of colors, patterns, and finishes for both interior and exterior use. Due to their impervious surface, the panels are incredibly effective as outdoor rain screens as well as indoor hygienic cladding. The Athlon line is cut and arranged like a wood-shake facade in the reception area of the Shanghai Institute of Architectural Design and Research, in Shanghai, China (right). Trespa N.A., Poway, Calif. www.trespa.com **CIRCLE 231**

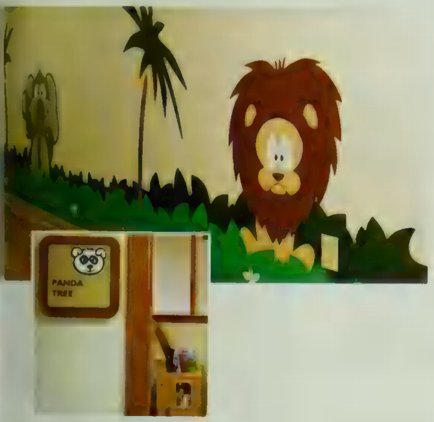
◄ Moldproof gypsum

USG recently launched a line of moisture-free gypsum panels boldly named Mold Tough. This addition to the Sheetrock line is the first gypsum panel to quell mold spores through an inventive manufacturing process that protects the panel's interior and exterior from moisture. Designed specifically for interior areas, the moisture-inhibiting panels protect materials from plumbing leaks and flooding, earning a mold-resistance score of 10 under ASTM D3273 guidelines. According to USG, Mold Tough panels are easy to score and snap, and nearly effortless to install. USG, Chicago. www.usg.com **CIRCLE 232**

▼ The Iron Age revisited

Irish designer Clodagh lends her talents to the Du Verre Hardware collection to create two striking new additions. The Kuba (bottom) and Primitive lines are the offspring of the union, and both showcase Clodagh's rich use of materials and penchant for abstract tribal motifs. Also new is the Rio series (below) by Gina Lubin, founding partner of Du Verre hardware. These exotic additions are sand-cast from brass, aluminum, and iron, and are available in a number of distinctive finishes. Maintaining a fabrication process that gives each piece minor variations, Du Verre's new lines offer the look of ancient forging. Du Verre Hardware, Toronto. www.duverre.com **CIRCLE 233**





◄ Expressionistic vinyl

InPro's new Sanparrel Expressions line makes its durable rigid vinyl sheets available for dynamic graphic styles. With the new Expressions label, the hundreds of colors, patterns, and thicknesses available in InPro's wall-protecting vinyl can be cut to custom design and shapes, enlivening any civic space. Also, InPro's sheets do not contain any plasticizers and therefore do not harm indoor air quality. With its possibilities for custom colorful graphics, the new Expressions line can be used in schools or hospitals where designers can forgo institutional monochrome for something more whimsical. InPro Corp., Muskego, Wis., www.inprocorp.com **CIRCLE 234**

Feel the heat

ffering the most comprehensive floor-warming system n the market, Laticrete's FahrenHEAT thermal wiring is deal for both residential and commercial projects. The ahrenHEAT system is easy to install, as it requires no angerous near-wire stapling or nailing. The mat's self-dhesive mesh keeps it in place, and the low-profile iring makes it virtually undetectable beneath hard tile flooring. side from its D.I.Y.-friendly adhesive, convenient sizes, and user-iendly thermostat, each FahrenHEAT mat comes with project layout oftware and online guides to make installment manageable for homeowners nd builders alike. Laticrete, Bethany, Conn. www.laticrete.com **CIRCLE 235**

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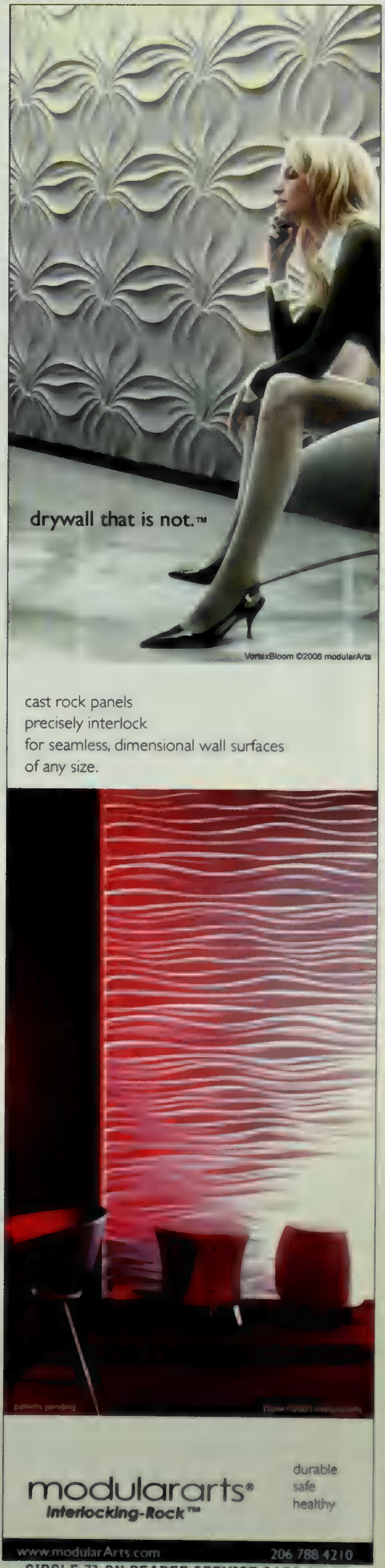

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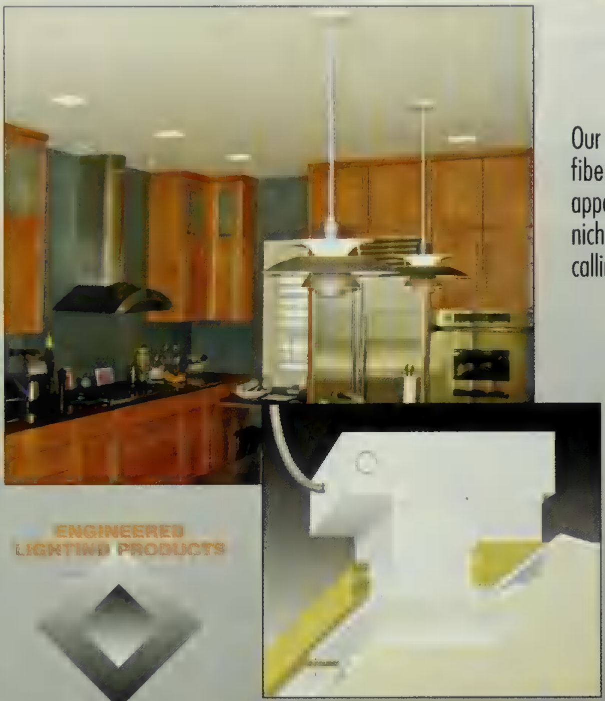

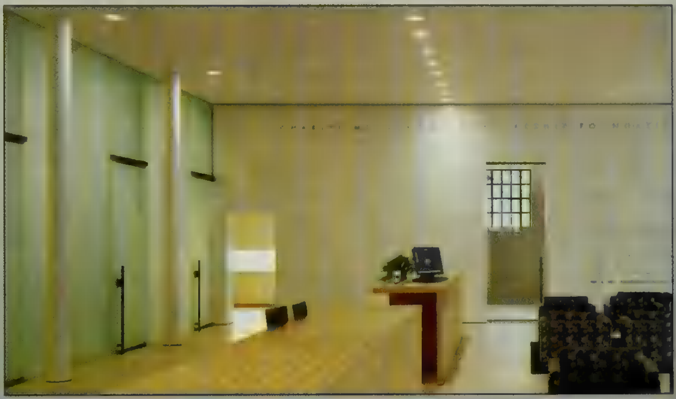

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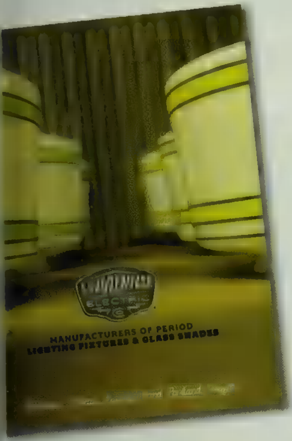
Product Resources Literature

Schoolhouse's textbook
Schoolhouse Electric has released a new catalog with prices and dimensions of its prewar-inspired light fixtures. Ninety-five percent of the Schoolhouse line uses hardwired, energy-efficient GU24 technology—making it the most LEED-friendly selection of period lighting available. Schoolhouse Electric, Portland, Ore. www.schoolhouseelectric.com **CIRCLE 236**

Powers Fasteners tome
The latest updates in anchor technology, codes, and approval listings abound n Powers Fasteners' 5th edition *Specification and Design Manual*. The 390-page volume is a resource for architects and engineers in search of anchor products, MSDS sheets, and software. Powers Fasteners, Brewster, N.Y. www.powers.com **CIRCLE 238**

Surmounting your hang-ups
Peerless Industries' 2007 professional-grade audio/visual mount catalog features an easy-to-navigate index and thorough guide. Aside from its 15 new products, the up-to-date catalog also introduces an icon-based accessory section for convenient browsing. Peerless Industries, Chicago. www.peerlessmounts.com/catalog **CIRCLE 237**

Revamped lighting guide
Cooper Industries introduced its comprehensive catalog of specification-grade interior and exterior luminaries from its subsidiary Shaper Lighting. The 525-page catalog includes a new icon system for easy navigation, new Energy Star Rating details, and new products and finishes. Cooper Lighting, Peachtree, Ga. www.cooperlighting.com **CIRCLE 239**



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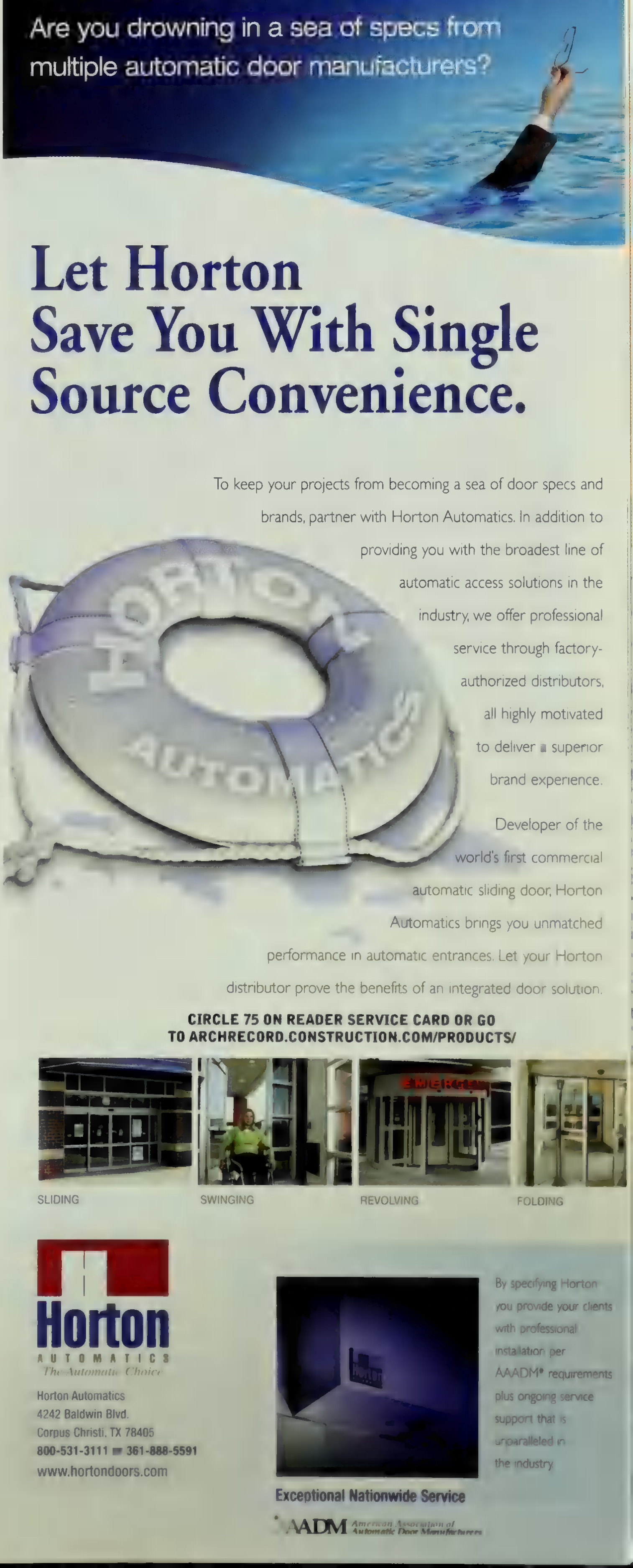
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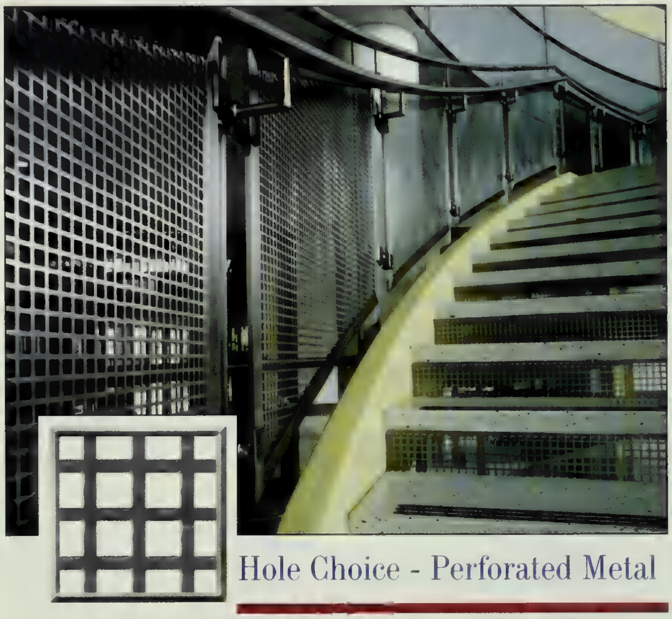

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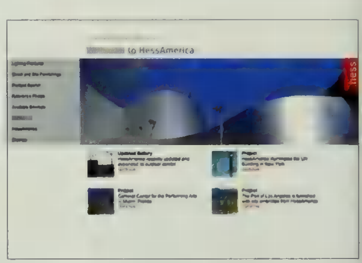
Product Resources On the Web

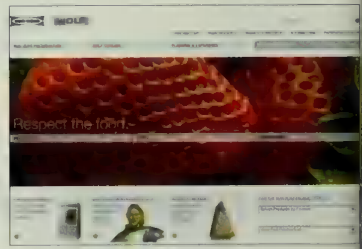


www.hessamerica.com

The Web site of Euro lighting label Hess elegantly arranges its American products under a clean interface. Pop-up side menus guide buyers to product specifications, multi-angle photographs, technical drawings, and even catalog-page PDFs. Aside from the firm's familiar lighting, the Web site also showcases its range of other products, such as benches, litter receptacles, bike racks, and railing systems. In addition, the Web page offers more than 300 reference photographs of its products on-site in projects across North America and Europe.

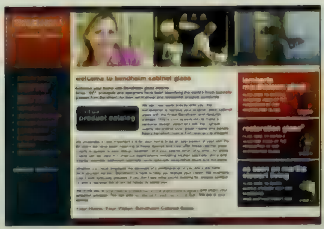
www.jeld-wen.com

Boasting the largest selection of custom wood window drawings and product specifications online, Jeld-Wen's Web site is undeniably massive in scope—perhaps even to a fault. It is overrun with a glut of options and images for architects, builders, and homeowners alike, yet the search process is often labyrinthine and lacks a smooth interface. Nonetheless, its product listings are virtually inexhaustible, offering prospective buyers the opportunity to browse a number of styles, finishes, and hardware types.



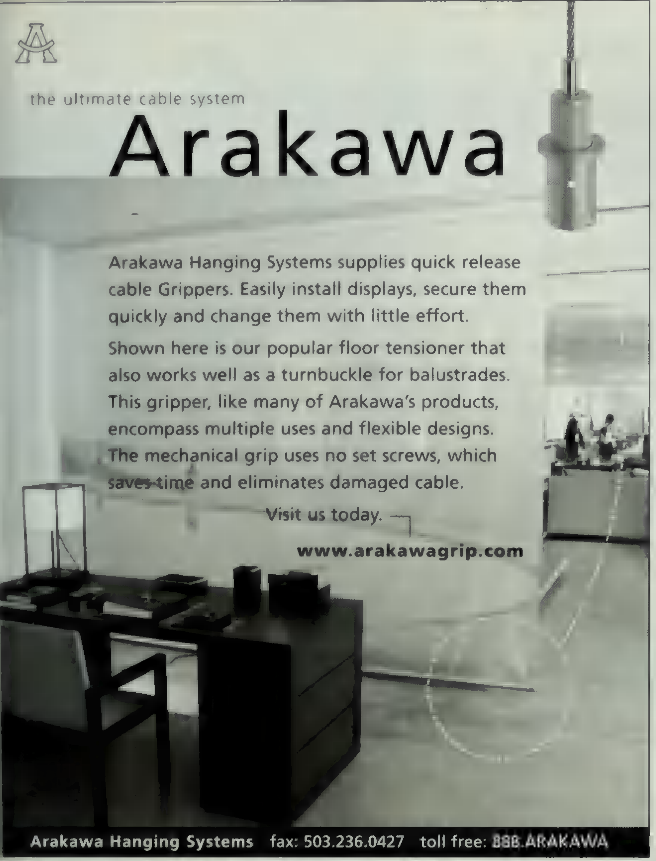
www.sub-zero.com
www.wolfappliance.com

Sub-Zero and Wolf Appliance—celebrity names in the gourmet kitchen industry—fuse their legendary products into a glossy shared Web site. While it often hiccups as a result of massive flash videos and demos, the site is easy to navigate and highly interactive. Buyers can browse a range of customizable options and color palettes to help them visualize their dream kitchen. And with a bevy of product measurements, photos, and informational videos, the site makes it that much more attainable.



www.bendheimcabinetglass.co

The words "Your home. Your vision" welcome visitors to the remarkably user-friendly Bendheim Cabinet Glass site, whic makes said vision lucid through its online resources. The site offers measuring tips and a helpline number for D.I.Y. soldiers, a well as an online catalog that's easy to browse. Interested buyers simply select search criteria (various types and styles) and sift through resulting options. Aside from obtaining detailed specifications of glass siz and prices online, prospective customers can also order 2 ¾" x 5" samples for $3.



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Arakawa Hanging Systems supplies quick release cable Grippers. Easily install displays, secure them quickly and change them with little effort.

Shown here is our popular floor tensioner that also works well as a turnbuckle for balustrades. This gripper, like many of Arakawa's products, encompass multiple uses and flexible designs. The mechanical grip uses no set screws, which saves time and eliminates damaged cable.

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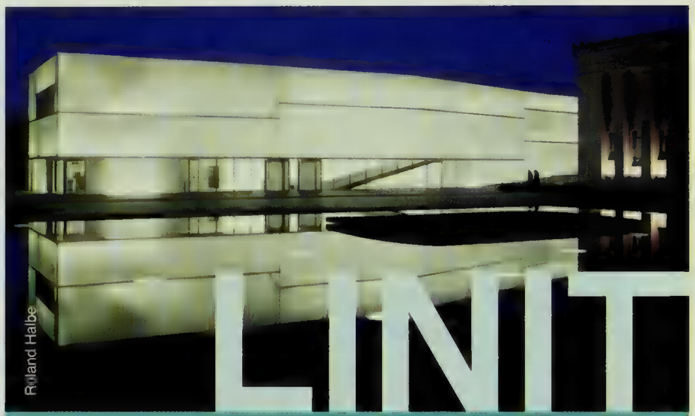

LINIT

channel glass

PROJECT: **The Nelson-Atkins Museum of Art, the Bloch Building, Kansas City, MO**

OBJECTIVE: Construct a bold museum addition complimenting the original classical, columned building. Allow an unobstructed view of the stately main entrance and the expansive Kansas City Sculpture Park. Provide underground galleries suffused with natural light.

SOLUTION: Over 100,000 sqft of custom Lamberts LINIT channel glass form five lenses that punctuate the hills, pouring daylight into the galleries below. LINIT's exclusive Solar® texture, low iron channels diffuse the sunlight, enhance the galleries interior lighting, and form immense glowing night sculptures. Soaring to heights of 22', every channel is SGCC certified tempered and heat-soak tested. Successful execution of architecture as art; immediately one of the most recognizable buildings in the world.

ARCHITECT: Steven Holl Architects, New York, NY with BNIM Architects, Kansas City, MO
GLAZIER: Carter Glass, Co., Inc., Kansas City, MO

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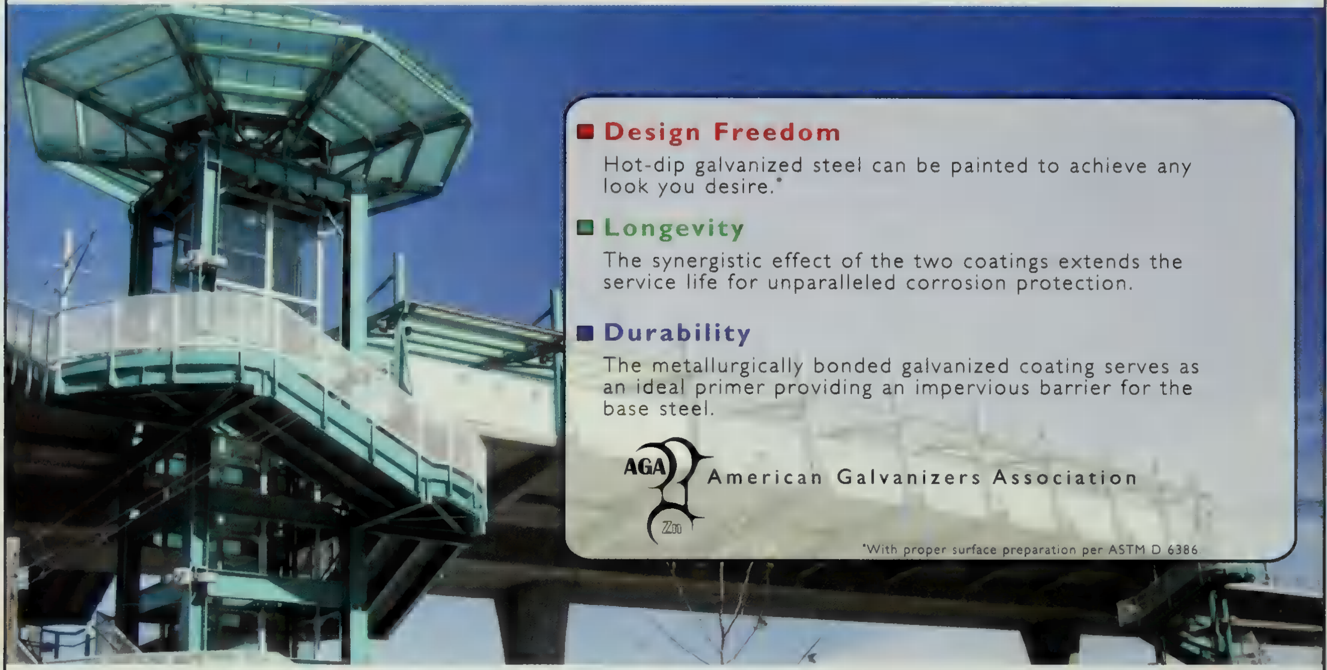

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AGA Zn American Galvanizers Association

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San Diego, CA

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American Institute of Architecture Studen

The AIAS serves as the incubator for the architecture profession and its many related organizations. By joining the AIAS, members are expressing interest in the profession and in their future. Our leadership development activities provide significant opportunities for students to advance their skills while encouraging them to become engaged members of the profession as well as leaders in industry, in their communities and in society. Many AIAS alumni have served and continue to serve as leaders in the profession and their communities today.

Through the development of AIAS Emerging Leader Initiatives, our members impact society by strengthening and developing unique community outreach programs. The AIAS fosters fu
generations of professionals who are prepared to take
leadership roles in the profession and in industry, and wh
ready to address critical societal matters. As involved citi
leaders and policy makers on local, national and global sc
these future leaders will be addressing needs for healthy
sustianably designed buildings and communities, and
be dealing with issues such as affordable housing,
transportation, and universal design.

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generations of professionals, please visit www.aias.org.

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AIAS

Dates & Events

New and Upcoming Exhibitions

Me, Myself & Infrastructure: Private Lives and Public Works in America
Chicago
August 8–November 16, 2007
Featuring a New York coffee shop, a comfortable living room, a city bus stop, and a "big box"–type store, this exhibition invites visitors to explore how their decisions—whether it's buying a home in a new subdivision or shopping at Wal-Mart—shape the built environment. At the Chicago Architecture Foundation. Call 312/922-3432 or visit www.architecture.org.

California Design Biennial 2007
Pasadena
ugust 18–September 30, 2007
his exhibition is a juried selection of the most riginal and important design produced in alifornia over the past two years and is the only how that highlights the unique achievements of alifornia designers. Fashion, furniture, transortation, consumer products, and graphic design vill be on display—all selected by a jury of enowned design professionals. At the Pasadena luseum of California Art. Call 323/936-1447 or isit www.caapr.com.

ectures, Conferences, nd Symposia

Efficiency Good Enough?
hicago
ugust 14, 2007
public program with Helen Kessler, FAIA, JKessler Associates. At the Chicago Architecture oundation. Call 312/922-3432 or visit ww.architecture.org.

AIA150
he 2007 Western Mountain Region onference: Dreamscapes to reenscapes
cline Village, Nevada
eptember 12–16, 2007
e conference will promote sustainable design nd energy conservation in the region. Featured eakers will be Edward Mazria, founder of chitecture 2030, and R.K. Stewart, the national esident of AIA. The conference will include an clusive green trade show and expo with emonstrations. At the Hyatt Regency Resort. r further information on expo booths, call 775/827-4441. For more about the WMR conference, visit www.aiann.org.

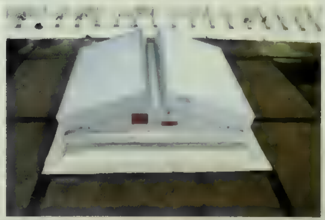
Dwell on Design Conference + Exhibition: Building Community in the Modern World
San Francisco
September 14–16, 2007
All aspects of the built environment will be included, from urban redevelopment projects to co-housing and single-family dwellings, farmers markets to public art programs, as well as diverse social and economic interactions that define the world in which we live. A hands-on marketplace will demonstrate top products and services inspired by modern design. At the Concourse Exhibition Center. Visit www.dwellondesign.com.

Competitions

Schedium: The Art of Drawing in the Age of Digital Architecture
Deadline: August 31, 2007
An international call for entries to submit portfolios celebrating the drawing abilities of today's

Made Possible by Bilco

Energy costs around the world are rising. Even the slightest increase in electric prices causes the operating costs for a typical building to rise. Fortunately, with the implementation of a proper daylighting design, building owners can save up to 75% of the energy used for lighting a building. Turning off or dimming lights when not needed can also save 10% - 20% of the energy used to cool a building. Installing Bilco's Lumivent® fire vents will vent smoke, heat, and noxious gases in the event of a fire as well as allow natural lighting to illuminate warehouses, manufacturing plants, and other facilities with large expanses of unobstructed space and further reduce energy costs.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For more information on our products or help with your next design problem, call (203) 934-6363 or log on to www.bilco.com

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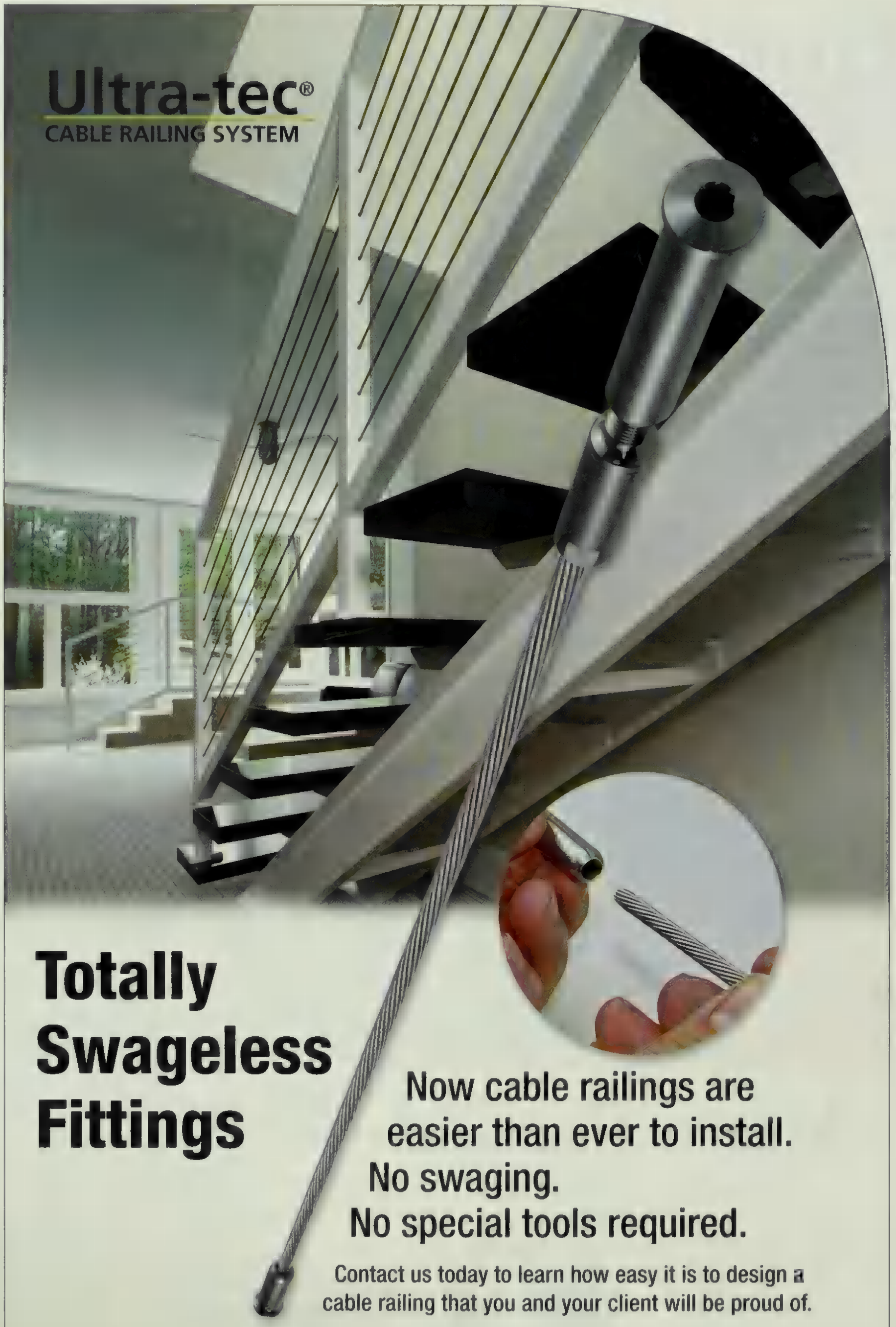

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emerging architects. For more information, visit www.schedium.org.

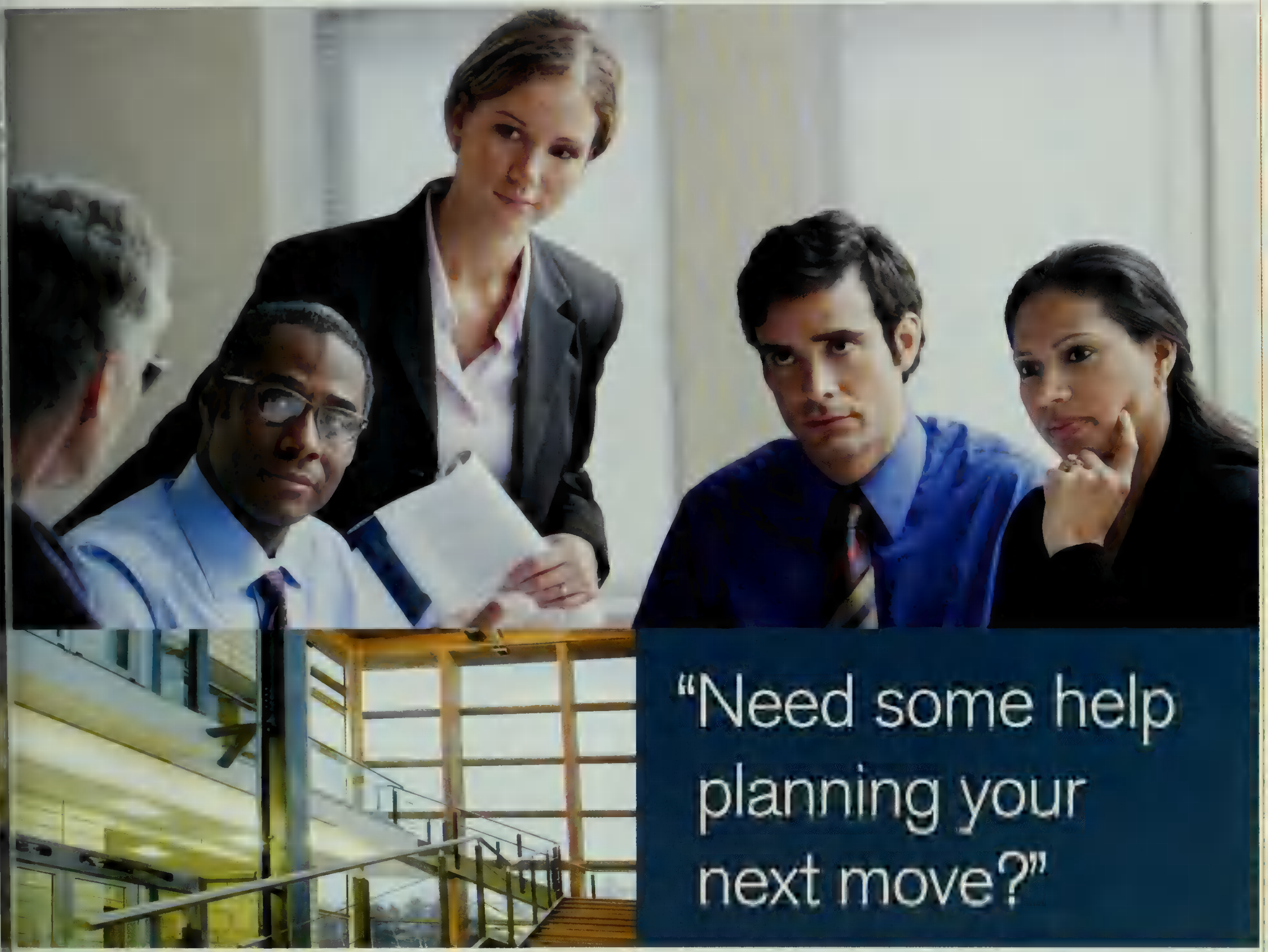
Portland Courtyard Housing Competition: Creating Spaces for Families, Community, and Sustainability in the City
Deadline: October 24, 2007
This competition will explore possibilities provided by housing oriented to shared courtyards as an additional infill housing type for Portland, Oregon. Architects, landscape architects, builders, developers, students, and others interested in the competition are eligible. Multidisciplinary teams are encouraged. Visit www.courtyardhousing.org.

Self-Sufficient Housing/ The Self-Fab House: 2nd Advanced Architecture Contest
Registration Deadline: September 17, 2007
An international summons to architects, designers, and students from around the world, inviting proposals for the construction of self-sufficient dwellings with an emphasis on exploring people's capacity to construct their own homes. Visit www. advancedarchitecturecontest.org.

The American Institute of Architecture Students' (AIAS) 2nd Annual National Student Design Competition
Deadline: November 5, 2007
Developed for advanced students, this competition will challenge participants to design a pediatric outpatient rehabilitation center and family support facility utilizing architectural aluminum building products and systems. For more information, visit www.aias.org/kawneer.

Palladio Awards
Deadline: November 15, 2007
This program recognizes individual designers and/or design teams whose work enhances the beauty and humane qualities of the built environment through creative interpretation or adaptation of design principles developed through 2,500 years of the Western architectural tradition. Call 718/636-0788 or visit www.palladioawards.com.

E-mail event and competition information two months in advance to elisabeth_broome@mcgraw-hill.com.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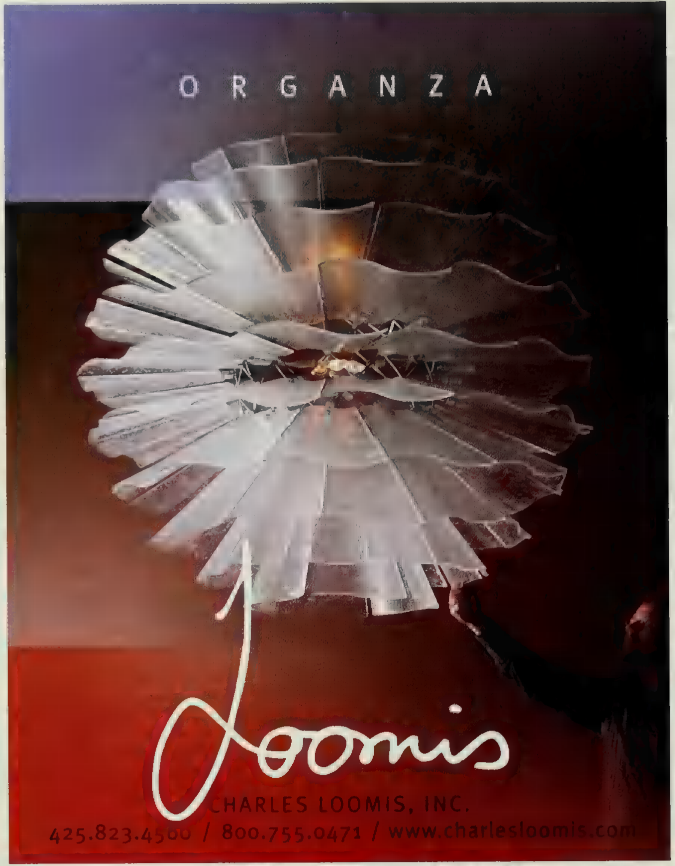

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Don't Do It Half-Grassed!

Grasspave2 (right) has 100% grass coverage, 5721 psi compressive strength, 92% void space for the healthiest root zone, and is made from 100% recycled plastic. Gravelpave2 (not shown) is beautiful too!

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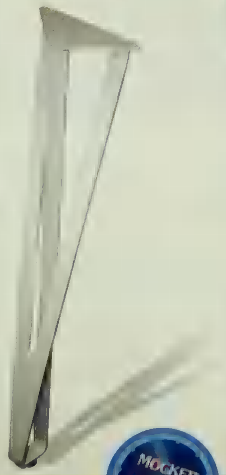
Call For Entries

Mockett Design Competition

2007 marks the 22nd anniversary of our leading edge competition seeking innovative designs of furniture hardware, components and accessories, for commercial and residential furniture.



Loop Leg, 2006 First Place, designed by **Peter J. Pless**

MOCKETT Design Competition Winner

Offering a First Prize of $1000, an engraved trophy, and a royalty.

Entries close September 4, 2007, so enter today!
Call (800) 523-1269 or visit mockett.com for more details.

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Contact Headwaters Resources for free technical literature and information on how fly ash use benefits the environment.

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American Institute of Architecture Students

Life safety, dignity and comfort are the foundation of and the reason for Freedom by Design™. Freedom by Design is an AIAS-led program that utilizes the talents of architecture students in service to their communities by helping individuals with physical challenges. FBD provides students with the opportunity to combine design skills and with a passion for service and leadership that can radically impact the lives of individuals in need.

Minor modifications to the homes allow individuals to live safely, comfortably and with dignity by addressing their struggle with everyday tasks such as getting in and out of showers, ascending stairs, or egress to the home itself.

Through its 130 chapters, the AIAS is implementing a program that involves students resolving accessibility issues, and simultaneously provides the students with the experience of working with a client, mentorship from a local architect, and an understanding of the practical impact of architecture and design. The AIAS will continue to work diligently to place FBD and issues of universal design and community service in the national spotlight.

You are invited to get involved. The AIAS is seeking mentors and supporters to help us grow this important program. Please help us help others. To learn more, visit www.aias.org/freedom.

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SAFETY. DIGNITY. COMFORT.
"What do we live for, if it is not to make life less difficult for each other?"

The AIAS is an independent, non-profit, and student-run organization that is the sole official student voice in the profession.

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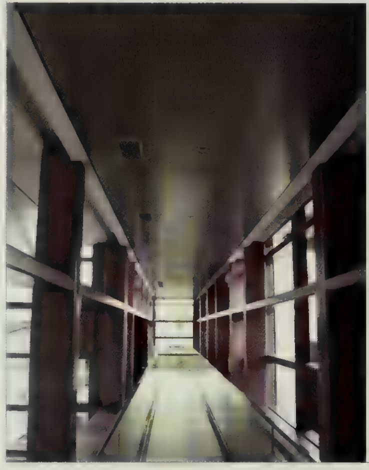
| Circle Reader Service #150

Decorative Metal Ceilings

Gage Corporation, Int.



The Gage Corporation International has been designing and manufacturing decorative metal ceilings since 1989. Gage ceilings feature more than 50% post-consumer recycled material and are visually rich, functional, and versatile as a design medium. Custom collaboration is encouraged. Contact the Gage factory for literature and sample requests.

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www.gageceilings.com

| Circle Reader Service #153

Mold/Moisture Resistant Glazed CMU

Trenwyth Industries

Exceptional high-performance buildings begin with Trenwyth premium architectural concrete masonry units. Astra-Glaze-SW+® recycled glazed units offer the beauty of ceramic tile and the durability and structural integrity of concrete masonry. Available in colors, shapes and sizes you won't find anywhere else, Astra-Glaze-SW+ units are mold/moisture resistant, easy-to-clean and stain/graffiti resistant.

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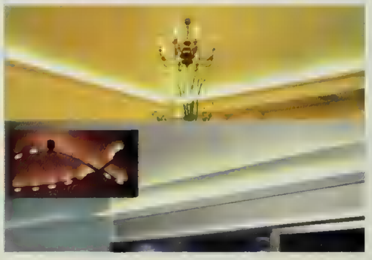
| Circle Reader Service #151

Cornice Mouldings for Indirect Lighting

Architectural Products by Outwater, LLC



Orac has created a special series of high-density polyurethane cornice mouldings in its Orac Decor® and Orac Myline Collections that have been specifically intended for use with indirect lighting. Manufactured to easily accept a variety of cove moulding light fixtures without causing scalloped or uneven light dispersion and illumination, the Orac Decor® and Orac Myline Cornice Mouldings for Indirect Lighting can also be used just as readily as a traditional cornice moulding without lighting if desired. Free 1,100+ Page Master Catalog!

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Quality Certification Program

Architectural Woodwork Institute

Savvy designers know that custom architectural woodwork adds a sophisticated statement to any project. That's why the specification fo custom woodwork should include compliance with the AWI Quality Standards during the fabrication, finishing and installation when inspected. When you specify the use of AW Quality Certification Program labels and/or certificates for your woodwor project, you also have access to QC representatives who can answer technical questions or evaluate the woodwork per the contract team's request

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Contact Industries

Defect-free wood veneer on the outside. Aluminum, PVC, MDF or finger-jointed pine on the inside. Innovative veneer technology that combines the warmth and beauty of wood with the versatility and performance characteristics of non-wood building materials. With Contact's wrapped profiles you can creatively specify form, fit and function in ways you might never imagine.

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| Circle Reader Service #156

Structural Framing Solutions

Level by Weyerhaeuser

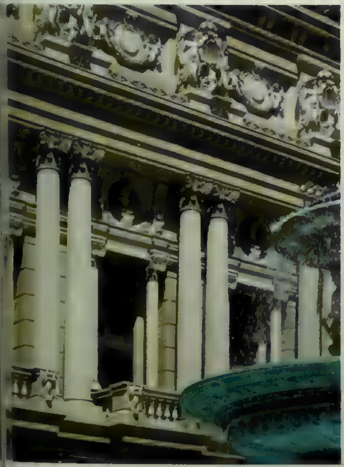
TimberStrand® LSL is one part of a complete and integrated package of framing materials available from iLevel® by Weyerhaeuser—from foundation to rooftop—which include trusted products and brands such as Trus Joist® Parallam® parallel strand lumber (PSL), TJI® joists, Structurwood® panels and Weyerhaeuser Premium Joists™.

888-iLEVEL8
www.iLevel.com

| Circle Reader Service #157

Columns, Balustrades & Cornices

Melton Classics



Melton Classics provides the design professional with the most comprehensive selection of quality architectural products in the industry, including architectural columns, balustrades, mouldings, cornices, and a wide array of architectural elements. Architectural columns are available plain or fluted, load-bearing or column covers, round or square in fiberglass, fiberglass/marble composite, synthetic stone, cast stone, GFRC, and wood for paint or stain. Melton Classics offers a maintenance free balustrade product ideal for any application.

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| Circle Reader Service #158

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Armetco Systems offers a complete line of metal cladding systems for interior and exterior wall applications, including cornices, fascias, soffits, canopies, column covers, beam wraps and various architectural elements. Materials include aluminum composite material and aluminum plate with high performance paint finishes and anodic finishes, as well as natural finishes like copper, stainless steel and zinc. Armetco has metal cladding solutions for every application. Engineered systems include rout and return dry seal, continuous edge grip, a variety of wet seal systems and the new RS4 rainscreen system.

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| Circle Reader Service #159

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Aluflam North America

Imagine being able to specify a fire-rated system that looks so good you wouldn't know it's fire-rated. Imagine the clean, rich lines of clear glass. With ALUFLAM storefront and curtainwall systems, this is reality. Contact them for further information.

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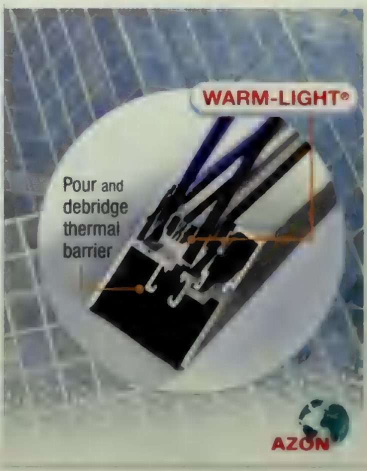
Extreme Performance Insulating Glass

AZON USA INC.



Warm-Light® spacer for insulating glass provides a more comfortable interior environment, reduces thermal conductivity and condensation on the glass surface while lowering utility costs. Azon is the global leader in developing technology for the manufacture of thermal barrier aluminum fenestration, commonly referred to [illegible] the pour and debridge method.

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Stained Glass for Hurricane & Earthquake Codes

Bovard Studio Inc.

Bovard Studio Inc. Stained Glass has developed a proprietary process for laminating stained glass onto large panels of 1/2-in. laminated tempered glass to meet hurricane and earthquake codes. Pictured: West Angeles Cathedral's 108-ft.-high stained glass tower with its 652-ft.-long by 8-ft.-high stained glass clerestory band. Visit us at the Traditional Building Exhibition and Conference at the Morial Convention Center in New Orleans, October 18-20, 2007 (Booth #101); and at the National Preservation Conference at the Saint Paul Rivercenter, St. Paul, MN, Oct. 2-6, 2007 (Booth # to be announced).

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www.bovardstudio.com

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High Thermal Performance

Kawneer Company, Inc.

The Kawneer AA™3900 Thermal Sliding Door features an ISOWEB® polyamide thermal break that provides low thermal transmittance and high condensation resistance while eliminating dry shrinkage. This feature helps the product meet performance standards. It is available in a range of finish options with corrosion resistant hardware that provide ease of operation, plus safety and security for building occupants.

KAWNEER

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| Circle Reader Service #165

Versatile Windows

Fenevations, LLC

Fenevations manufactures MegaWood, Infinity Bronze, and SteelView windows. Megawood offers fine hardwoods with furniture-grade finishes, combined with heavy gauge bronze or hand welded, aluminum extruded exteriors. Infinity Bronze is a unique thermally broken solid bronze system offering beauty, style and traditional sightlines. SteelView offers stainless steel beauty for contemporary designs.

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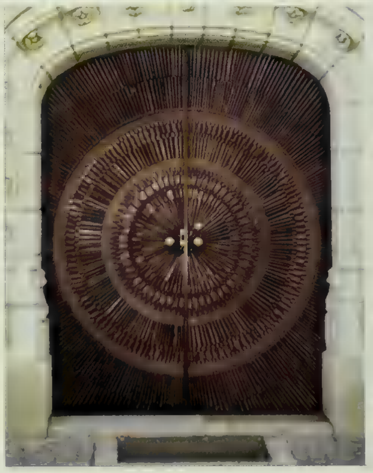
www.fenevations.com

| Circle Reader Service #163

Special Purpose Doors and Windows

Krieger Specialty Products



Say goodbye to boring. Krieger's acoustical blast and bullet doors can be veneered to achieve any visual aesthetic you seek. Choose from virtually every type of wood. Apply antique facades to brand new doors. Or—go for the bold look of stainless steel, bronze, brass, copper or stone.

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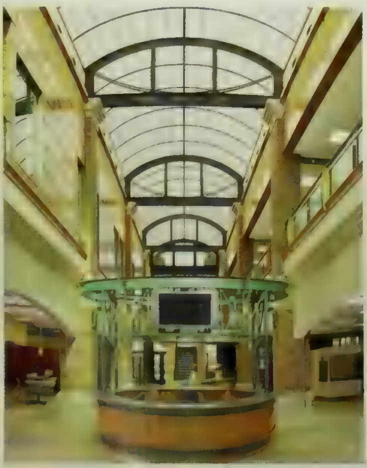
Daylighting

Kalwall Corporation



Curtainwalls, window replacement systems and skylights of every imaginable configuration from a world leader in translucent daylighting with over 50 years of innovation and performance. Renowned for balanced, diffuse natural light, Kalwall fills any space with glare-free, shadow-free, pure museum-quality Daylighting™ and the most advanced insulating performance. An inviting nighttime glow brings any building to life while preventing direct-beam illumination from escaping the building. Daylight modeling service. Green and LEED®.

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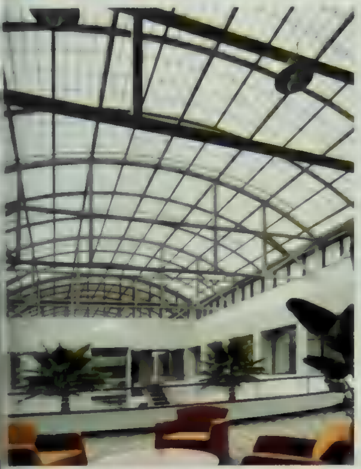
Built-in Sun Management

Major Industries, Inc.



Illuminate interior spaces with controlled natural daylight, all while gaining the benefits of reduced HVAC costs and LEED® credit opportunities. Guardian 275® Translucent Daylighting Panels feature integral water management systems and advanced anti-weathering technology for years of worry-free service. When your next project demands energy-saving, glare-free natural light, choose Guardian 275® Translucent Daylighting Panels from Major Industries. From pre-engineered Quick Ship™ skylights to custom-designed focal points, they're your one-stop source for quality daylighting solutions.

888-759-2678
www.majorskylights.com

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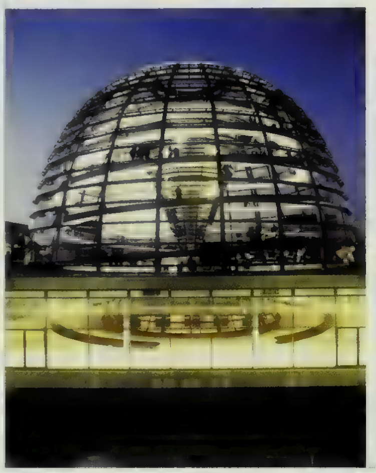
Steel Curtainwall Systems

Technical Glass Products



Architects and designers now have a better way to incorporate large expanses of glass in building designs. European-designed SteelBuilt Curtainwall™ Systems from Technical Glass Products are strong and slim, allowing larger spans of glazing than aluminum framing and increased ability to bring natural light indoors.

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www.tgpamerica.com

Circle Reader Service #171

Sphere Glass

Nathan Allan Glass Studios Inc.

Sphere Glass is produced by creating hemispheres in various diameters, that are individually formed and attached to background panels of Clear or Cast textured glass. Clear panels allow for 100% light transmission and Cast panels provide a decorative background while creating privacy, and still allowing for ample light transmission. Spheres are available in 5 different Tints, Clear, and Low Iron glass. For more traditional tastes, crinkled textures of Gold and Silver Leaf Spheres are also available. Diameters can range from 1-in. to 24-in. Client: Denver News Agency. Architect/Designer: Newman Cavender & Doane, CO.

604-277-8533 ext 225
www.nathanallan.com

Circle Reader Service #169

Custom Molded Architectural Shapes

Formglas

Custom molded architectural shapes by Formglas expand design opportunities for interiors and exteriors. Lightweight and durable GRG and GRC components are cast in an endless array of shapes, textures and color finishes. Their team of trained professionals work with you to find practical and easy to install solutions that enhance aesthetic appeal. Email Info-ar5@formglas.com

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www.formglas.com

Circle Reader Service #172

Sustainable Commercial Entrance Products

Special-Lite, Inc.

Special-Lite provides a single, sustainable solution to the multiple challenges of school and commercial entrances. Attractive entryways for all architectural styles; GREENGUARD Certification for Indoor Air Quality; superior thermal performance; no need to finish or refinish; cannot rust, crack, split, peel or rot; extends life of entire entrance; low maintenance requirements. To learn more, visit their website or request their Green and Educational Facilities brochures.

800-821-6531
www.special-lite.com

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Athletes shouldn't suffer through injuries due to a poor performing sports floor. Athletic Floor Systems provides high performing, safe and low cost gymnasium floors. AFS supplies sports floors for competition gyms, sports arenas and multi-purpose facilities. There are more than 7500+ installations in over 65 countries. Demand performance, safety and low cost in your next sports floor.

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Circle [illegible] Service #173

Pre-Engineered Door Hardware

HDI Railings

From minimalist simplicity to stylish sophistication, HDI offers pull handles to suit every taste. Featuring nearly 60 distinct designs made from stainless steel, wood, glass and stone, you're sure to find a solution to your need. Many pull handles come in a variety of sizes, and the HEWI CombiSystem features a patented method of adjustment, allowing easy installation on existing doors.

717-285-4088
www.hdirailings.com

| Circle Reader Service #174

Green Roof Systems

Homasote Company

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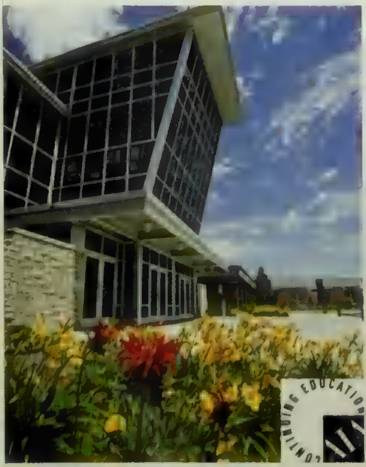
800-257-9491 ext. 1211
www.homasote.com/thermasote

| Circle Reader Service #175

Expand Your Architectural Options

Linetec



Linetec, a Kynar 500/Hylar 5000 paint, anodize and powder coat finisher offers "Introduction to Coatings: Field Performance and the Application Process" as a registered online learning program to help you attain your AIA Continuing Education credits. This presentation is available on-demand from Linetec's Architect Resource Center located on their web site at www.linetec.com.

888-717-1472
www.linetec.com

| Circle Reader Service #176

Exterior Tin Ceilings

M-Boss Inc.

Enhance the overall design of any exterior space with a pressed metal ceiling from M-Boss Inc. Choose from hundreds of patterns and finishes; in patterns ranging from sleek, contemporary styles to traditional designs replicated from turn-of-the-century originals. Available in three substrates: aluminum, solid copper and tin. Products are economically and promptly shipped direct to job sites.

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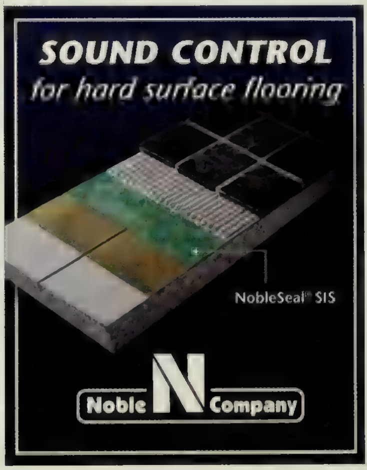
www.mbossinc.com

| Circle Reader Service #177

Reduce Impact Noise

Noble Company



NobleSeal® SIS is a sheet membrane that reduces the impact noise produced by hard surface flooring (like tile and hardwood floors). SIS is only 3/64-in.-thick so it minimizes problems with transitions and the need to alter door and cabinet heights. It is effective at reducing noise (IIC=62; STC=59). SIS can be installed over all common substrates, even gypsum concrete and radiant heating systems. SIS can also protect thin-set tile from cracking and provide waterproofing. Visit their web site. Email richard@noblecompany.com

800-878-5788
www.noblecompany.com

| Circle Reader Service #178

A Big Noise in Acoustics

Tectum

Tectum Inc. is making a big noise wit their new Fabri-Tec™ designer fabri acoustic panels. With over 70 differ ent style and pattern options, Fabri Tec gives architects and designer greater freedom to realize thei visions for spaces that need soun deadening, and attractive surfaces Request product literature or swatch es at Tectum.com.

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www.tectum.com

| Circle Reader Service #17

Tiles

Viva Ceramica

On their 1cm thick Backstage tiles, available in the 60x90cm and 30x90cm sizes, they fused 2 µm of metal onto the through-bodied porcelain slab. The resulting metalized glaze was then colored before they honed it to reveal totally unexpected metallic effects in green/yellow, red/orange, red/white and blue/black. All this as well as a really natural looking surface all set for the challenges of wear and tear and aging in a completely new way. Ideal for private homes and bathrooms, Backstage can also be used to great effect by interior designers in decorating ultra-modern stores.

www.cerviva.it

Circle Reader Service #180

Architectural Walls

KI

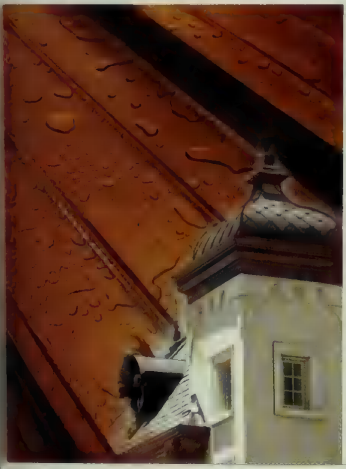
Genius® architectural walls by KI can achieve any look without sacrificing flexibility. Unlimited aesthetic options let you design storefronts, private offices, conference rooms, dividing walls, and more with sleek lines and beautiful finishes. Specify frames in anodized aluminum, veneer, or powdercoat paint. Genius walls can be rearranged at a moment's notice, and removable shells offer easy access to electrical/data. Genius walls comply with the U.S. Building Council's Green Building Design and LEED™. It has a superior STC rating of 44 to 48 (solid panels).

800-424-2432
www.ki.com

Circle Reader Service #183

Architectural Sheetmetal Products

CopperCraft



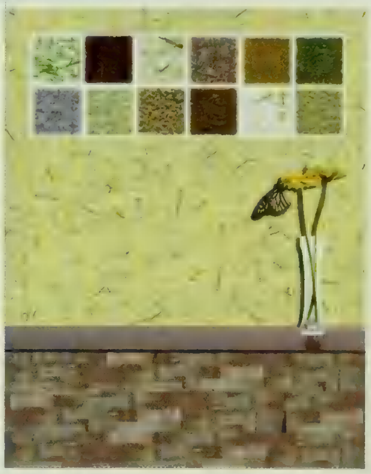
Structural integrity and performance are as important as aesthetics. Applying this understanding to the manufacture of its products is what sets CopperCraft apart from the competition. Their design, engineering, testing, and fabrication methods meet stringent structural and performance standards. You get unsurpassed quality, delivery, and custom service including a nationwide network of representatives. Their complete line of high quality architectural sheetmetal products include ornamental dormers, roof vents, roof drainage products, conductor heads, steeples, cupolas, and spires.

800-486-2723
www.coppercraft.com

Circle Reader Service #181

Wall Coverings

Mardero, LLC



Mardero, LLC specializes in green and environmentally friendly decorative products. Their newest line of Japanese Wall Coverings is made with Diatomaceous Earth, sand and straw. Free of VOC. It has a natural ability to remove foul smells, and maintain room humidity. They also offer granite, marble, limestone and lami-stone.

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ranslucent Insulated Wall Lights

PI Daylighting Inc

CPI is a world class leader in the design and manufacture of translucent insulated wall light systems. CPI's unique translucent polycarbonate standing seam glazing system provides great value for your construction dollar. CPI systems are made with Pentaglas® Nano-Cell technology, the latest and most advanced system for architectural daylighting applications.

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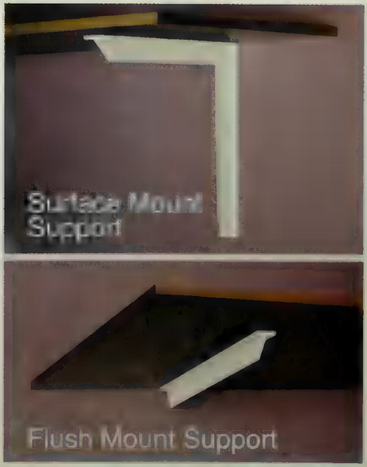
Circle Reader Service #182

Counter Support Brackets

Rangine Corporation / Rakks



Rangine Corporation's counter support brackets provide an easy-to-install alternative to full-height laminated panels. Available in a range of sizes to support counters up to 30-in.-deep, brackets install easily into studs or blocking and can support loads up to 450-lb. Less expensive than laminated supports, they increase open space while improving handicapped access and ergonomics. Brackets can be ordered in either surface or flush mounted configurations to provide heavy-duty unobtrusive support. Manufactured of extruded structural aluminum.

800-826-6006
www.rakks.com

Circle Reader Service #185

Aircraft Grade Aluminum Tables

Gyford Productions

Make a bold addition to your next interior design project with the Tecno Table and the new MiniTec Table. Created from their Standoff Systems product line, manufactured from aircraft grade aluminum, each table can be customized to meet your needs. Visit their web site at www.standoff-systems.com. To see more of their products, you may also visit www.todl.com or www.arcat.com. Call or e-mail for your free catalog and additional information.

775-829-7272
www.standoffsystems.com

| Circle Reader Service #186

Metals & Architectural Products

Móz Designs

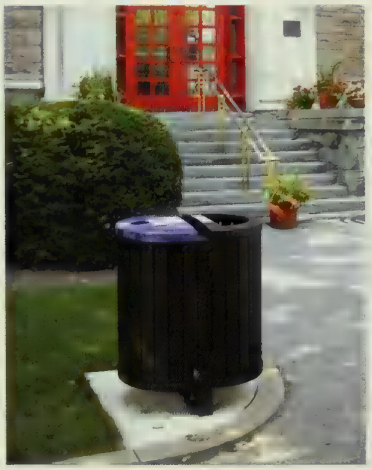
Móz new Elevator Interiors are prefabricated to offer easy installation and come in a variety of horizontal, vertical and square configurations. Their products stand up to high traffic and are available with durable Special Finishes. For a truly exceptional look, specify embossing and other unique features. Móz elevator interiors are available in aluminum and stainless steel with any combination of 12 unique patterns and 16 standard colors.

510-632-0853
www.mozdesigns.com/ar8

| Circle Reader Service #189

Public-Use Recycling Receptacles

Kettle Creek Corporation



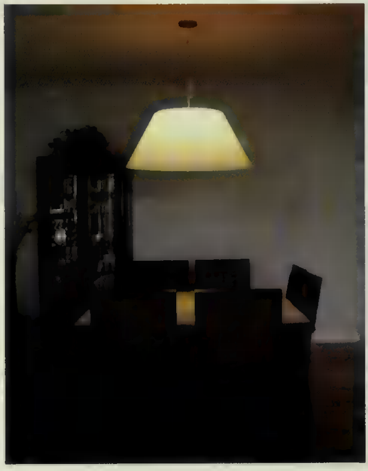
Highlight your green building project by specifying recycling receptacles in place of traditional ones. Kettle Creek's clean, contemporary designs are clearly marked for proper use. Their products are made of recycled plastic lumber and aluminum, two materials that combine great performance in outdoor settings with the environmental benefits of high recycled content.

800-527-7848
www.kettlecreek.com

| Circle Reader Service #187

Custom Made Light Fixtures

CP Lighting



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Clean-Lined Outdoor Furniture

Modern Outdoor

Premier provider, designer, and manufacturer of high-style, clean-lined, environmentally conscious outdoor furniture that is still made here in America. They offer four complete lines of furniture engineered for use in heavy commercial applications with the aesthetics for residential environments. Their lines include chairs, tables, benches, settees, stools, club chairs, sofas, ottomans, loungers, planters, bar carts, accent tables, and bar height products. They also offer custom work as pictured here with this communal table. Fax number 818-785-0168 Email info@modernoutdoor.com

818-785-0171
www.modernoutdoor.com

| Circle Reader Service #188

Decorative Lightning Rods

East Coast Lightning Equipment, Inc.

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(ECLE) line of architectural finia
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protection systems. ECLE's finials a
available in aluminum, bronze an
tinned-bronze. Five sizes range fro
16-in. to 96-in. tall. The UL-liste
finials can be incorporated into a
industry-standard lightning prote
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terminals (lightning rods) for reside
tial, historical and commercial pro
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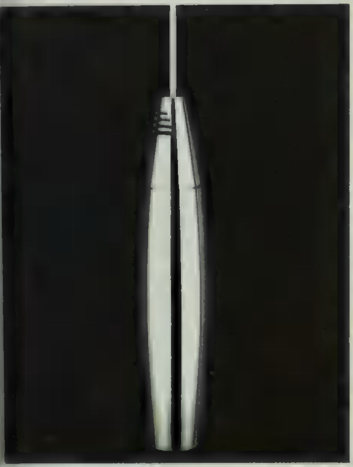
architectural accents.

888-680-9462
www.ecle.biz

| Circle Reader Service #1

Architectural Lighting and Ceiling Fans

G Squared Art



Slipstream pendant: an effortlessly smooth shape that makes a powerful yet graceful statement. Without superfluous details it will be appreciated by those who understand the power of pure form. To buy eco-friendly, high-design architectural lighting and fans please visit G Squared Art's web site at www.g2art.com or call toll free 877-858-5333 M-F, 7 AM-5 PM PST.

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www.g2art.com

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Design Luminaire & Pole

Sternberg Lighting

GALESBURG 1921 is a true vintage style roadway fixture with high-tech lamping. This large scale fixture has an optional hang straight box that gives additional support between the arm and fixture. Available with either polycarbonate, acrylic or glass tear drop prismatic acorn for excellent lighting. May be used with up to 400W metal halide or high pressure sodium lamping. Shown here painted with a custom two-tone green and gold stripes. The Galesburg luminaire measures 18-5/8-in. x 34-1/2-in. STERNBERG LIGHTING specializes in custom design and lighting since 1923.

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www.sternberglighting.com

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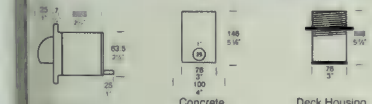
Elegant Outdoor Step Light

Hunza Lighting

The Hunza Solid Step Eyelid is an outdoor step lighting fixture that uses a canister mounting system to provide easy installation and a clean appearance, free of any visible mounting screws. Finish choices include solid copper, 316 stainless steel or machined, painted aluminum.



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Senior Associate University Architect

University Architect's Office (reference # 00031736)

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The Bloomington campus is listed as one of the five most beautiful campuses in the nation and has over 500 buildings built on approximately 2,000 acres with a student population of 38,000. Within the campus there are buildings and districts that are nationally listed as historic. The University Architect's Office is currently responsible for approximately one billion dollars of planning and construction on all campuses.

Requirements: Bachelor's degree in architecture and ten years experience as a practicing architect, preferably in design construction/renovation fields, including management experience required. Demonstrated skills in architectural design and design critique; demonstrated experience working with historic buildings and landscapes; and demonstrated ability to work with and manage a diverse workforce required. Must currently be a registered architect and be able to become a registered architect in Indiana.

Apply online at www.jobs.indiana.edu. Alternately, a cover letter and resume may be sent to Indiana University, UHRS Employment, 400 E 7th Street, Bloomington, IN 47405.

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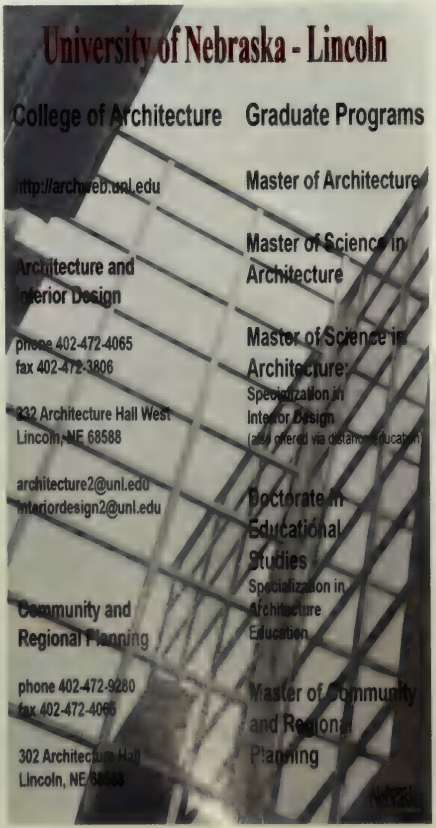
Indiana University is an equal opportunity/equal access/affirmative action employer. We value diversity and encourage applications from women, members of minority groups, and persons with disabilities.



University of Nebraska - Lincoln

College of Architecture

http://archweb.unl.edu

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fax 402-472-3806

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Lincoln, NE 68588

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Lincoln, NE 68588

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Responsible for dsgn renderings of mid/high rises & production of 3D CAD models for presentation & analysis of sustainability, earth-friendly materials, energy smart, air flow & other green features, & for LEED cert. BArch or equiv + 2 yrs exp reqd. Resume to Emilio DiPonio, Cook+Fox Architects LLP, 641 Ave of Americas, 8th Fl, NY, NY 10011.

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Assist the project architect in the development of project goals, schedules, and construction drawings for high-rise residential, commercial, hospitality and mixed-use projects. Mail resume with portfolio, referencing job code jc0707 to: D. Horton, Smallwood, Reynolds, Stewart, Stewart & Assoc., Inc., 3565 Piedmont Rd., Suite 303, Atlanta, GA 30305.

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ARCHITECTURAL RECORD

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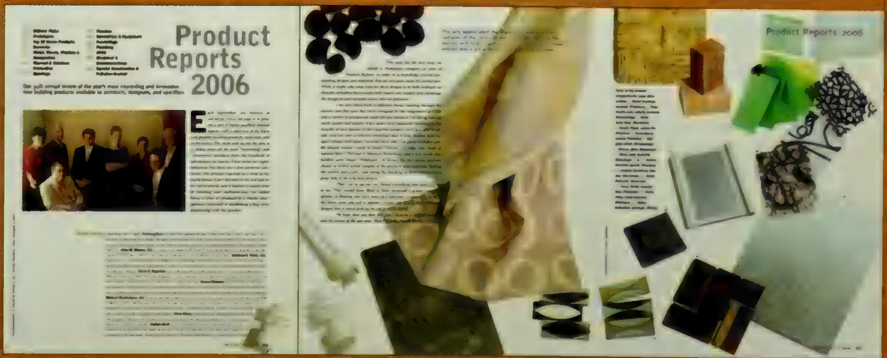
Product Reports 2007

Attention All Building Product Marketers: Please submit your new products to ARCHITECTURAL RECORD's Product Reports 2007. Product Reports will again be a major editorial feature in the December issue of ARCHITECTURAL RECORD, presenting the most interesting and useful new building products that will be available to the architect, specifier, and designer in 2008. A panel of architects, design professionals, and editors will select products for publication from those submitted by September 7, 2007. There's no entry fee. Just download a submission form at the Products section of architecturalrecord.com. Our panel will view each product category as a group, so please include an image of each submission in a slide, transparency, glossy color photo, or color printout of a digital image. If you send a CD, you must provide a labeled color printout of each image on the disk. Please make sure the digital image is a high resolution TIFF (300 DPI, at least 4×5 inches). If you have a labeled sample of your product (no larger than 8×10 inches), please include it with your submission.

Download your submission form now at the Products section at architecturalrecord.com. If you have any questions, please e-mail Rita Catinella Orrell at rita_catinella@mcgraw-hill.com. E-mailed submissions will not be accepted.



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The Fulton Street Transit Center, by Grimshaw Architects is one of the case studies that will be presented at *Architectural Record's* 2007 Innovation Conference.

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ormative structures
‹ Hoberman, Hoberman Design

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Van Deursen, of Van Deursen Innovation and Design

Work in place: Case Studies of Innovative and High Performance Materials and Systems

Investigating the Art and Science of Glass and Light
-James Carpenter, principal of Carpenter Design Associates, and Davidson Norris, principals of Carpenter/Norris Consulting, Advanced Daylighting Systems

-Marilyne Andersen, PhD, Department of Architecture, at the Massachusetts Institute of Technology

Case Study: The Fulton Street Transit Center
-Andrew Whalley and Vincent Chang of Grimshaw Architects, with James Carpenter

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26	*17*		ALPOLIC/Mitsubishi Chemical FP America Inc *alpolic-usa.com*
196	*80*		American Galvanizers Assocation *galvanizeit.org/galvpaint*
22	*14*	Ⓢ	American Specialties Inc *americanspecialties.com*
195	*77*		Arakawa Hanging Systems *arakawagrip.com*
135	*54*		Architect as Developer *architectasdeveloper.com/ar*
178	*64*		Architectural Area Lighting *aal.net*
18			Architectural Record *archrecord.construction.com*
cov2-1	*1*	Ⓢ	Armstrong *armstrong.com*
27	*18*		B-K Lighting *bklighting.com*
57	*149*		BEGA *bega-us.com*
134	*53*	Ⓢ	Belden Brick Company, The *beldenbrick.com*
195	*79*	Ⓢ	Bendheim *bendheim.com*
32	*23*		Bentley Systems Inc *bentley.com*
158	*57*	Ⓢ	Best Sign Systems Inc *bestsigns.com*
197	*81*	Ⓢ	Bilco Company, The *bilco.com*
61	*38*	Ⓢ	Bobrick *bobrick.com*
2-3	*2*		Brick Industry Association *brickinfo.org*
19	*11*	Ⓢ	C/S Group *c-sgroup.com/3000*
195	*78*		Cascade Coil Drapery *cascadecoil.com*
12-13	*142*	Ⓢ	CENTRIA Architectural Systems *centria.com*
200	*84*		Charles Loomis *charlesloomis.com*
173	*62*		Cooper Lighting *cooperlighting.com*
77	*47*	Ⓢ	CR Laurence Co Inc *crlaurence.com*
192, 200	*73, 86*	Ⓢ	Doug Mockett & Company Inc *mockett.com*
87	*51*	Ⓢ	E Dillon & Company *edillon.com*
163	*58*	Ⓢ	Easi-Set Industries *easiset.com*
54	*36*	Ⓢ	EFCO Corporation *efcocorp.com*
183	*66*		elliptipar *elliptipar.com*
192	*72*		Engineered Lighting Products *elplighting.com*
189	*144*		Eventscape *eventscape.net*
174-175	*63*		Gardco Lighting *sitelighting.com*
29	*20*		Grohe *groheamerica.com*
28	*19*	Ⓢ	Halfen Anchoring Systems *halfenusa.com*
31	*22*		Hanover Architectural Products *hanoverpavers.com*
cov-4	*91*	Ⓢ	Haworth *haworth.com*
6	*5*	Ⓢ	HDI Railing Systems *hdirailings.com*
200	*87*		Headwaters Resources *flyash.com*
193	*75*		Horton Automatics *hortondoors.com*
30	*21*		Indiana Limestone Company *indianalimestonecompany.com*
185	*68*		Insight Lighting *insightlighting.com*
200	*85*	Ⓢ	Invisible Structures Inc *invisiblestructures.com*
46	*30*	Ⓢ	IR - Von Duprin *vonduprin.ingersollrand.com*
4	*3*		Jack Arnold Architect *jackarnold.com*
41	*27*	Ⓢ	Kawneer Company Inc *kawneer.com*
168	*61*		Kim Lighting *kimlighting.com*
49	*33*		Klai Juba Architects *kalijuba.com*
80A-B			Kohler *kohler.com*
180	*65*		LightingUniverse.com *lightinguniverse.com*
24	*16*	Ⓢ	Lutron *lutron.com*
184	*67*		Manning Lighting *manningltg.com*
35	*24*		Marvin Windows & Doors *marvin.com*
212-213			McGraw-Hill Construction *construction.com*
156-157			McGraw-Hill Construction *construction.com*
199, 215			McGraw-Hill Construction *construction.com*
194	*76*	Ⓢ	McNichols Co *mcnichols.com*
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88	*52*	Ⓢ	Mortar Net *mortarnet.com*
182			National Building Museum *nbm.org*
10-11	*8*	Ⓢ	Oldcastle Glass *oldcastleglass.com*
186	*69*	Ⓢ	Pilkington *pilkington.com*
16, 83	*10, 49*	Ⓢ	PPG *ppgideascapes.com*
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167	*60*		Prudential Lighting *prulite.com*
66	*41*		Quiet Solution *www.quietsolution.com*
133	*70*	Ⓢ	Rixson *rixson.com*
73	*44*		Roof Products Inc *rpicurbs.com*
70	*43*	Ⓢ	Roppe Corporation *roppe.com*
39	*26*		SageGlass *sage-ec.com*
215	*89*	Ⓢ	Salsbury Industries *mailboxes.com*
69	*42*		Schott Corporation *us.schott.com*
cov-3	*90*		Selux *selux.com/usa*
155	*56*		Simpson Strong-Tie Company Inc *simpsonstrongwall.com*
190			Skyscraper Museum, The *skyscraper.org*
37	*25*	Ⓢ	Sloan Valve Company *sloanvalve.com*
48	*32*	Ⓢ	Smoke Guard *smokeguard.com*
43	*28*		St. Paul Travelers *stpaultravlers.com*
62	*39*		Steel Door Institute *steeldoor.org*
201	*88*		Sugatsune America Inc *sugatsune.com*
58	*37*		Sunbrella brand fabrics *sunbrella.com*
5	*4*		Technical Glass Products *fireglass.com*
75	*46*		Tindall Corp *tindallcorp.com*
47	*31*	Ⓢ	United States Aluminum *usalum.com*
85	*50*		Vista Window Film *vista-films.com*
50	*34*		Vistawall Architectural Products *vistawall.com*
44, 45	*29*		VT Industries *vtindustries.com*
14-15	*9*		Vulcraft, A Division of Nucor Corp *nucor.com*
136	*55*	Ⓢ	W&W Glass Systems Inc *wwglass.com*
198	*82*		Wagner *wagnercompanies.com*
165	*59*		Walker Zanger *walkerzanger.com*
65	*40*		Walter P. Moore *walterpmoore.com*
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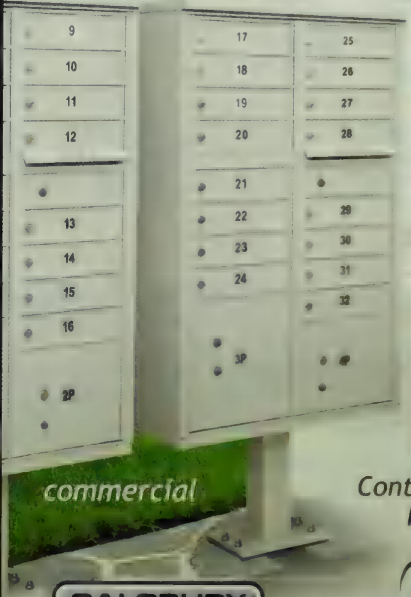

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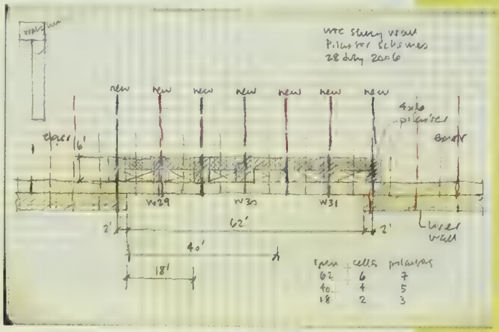

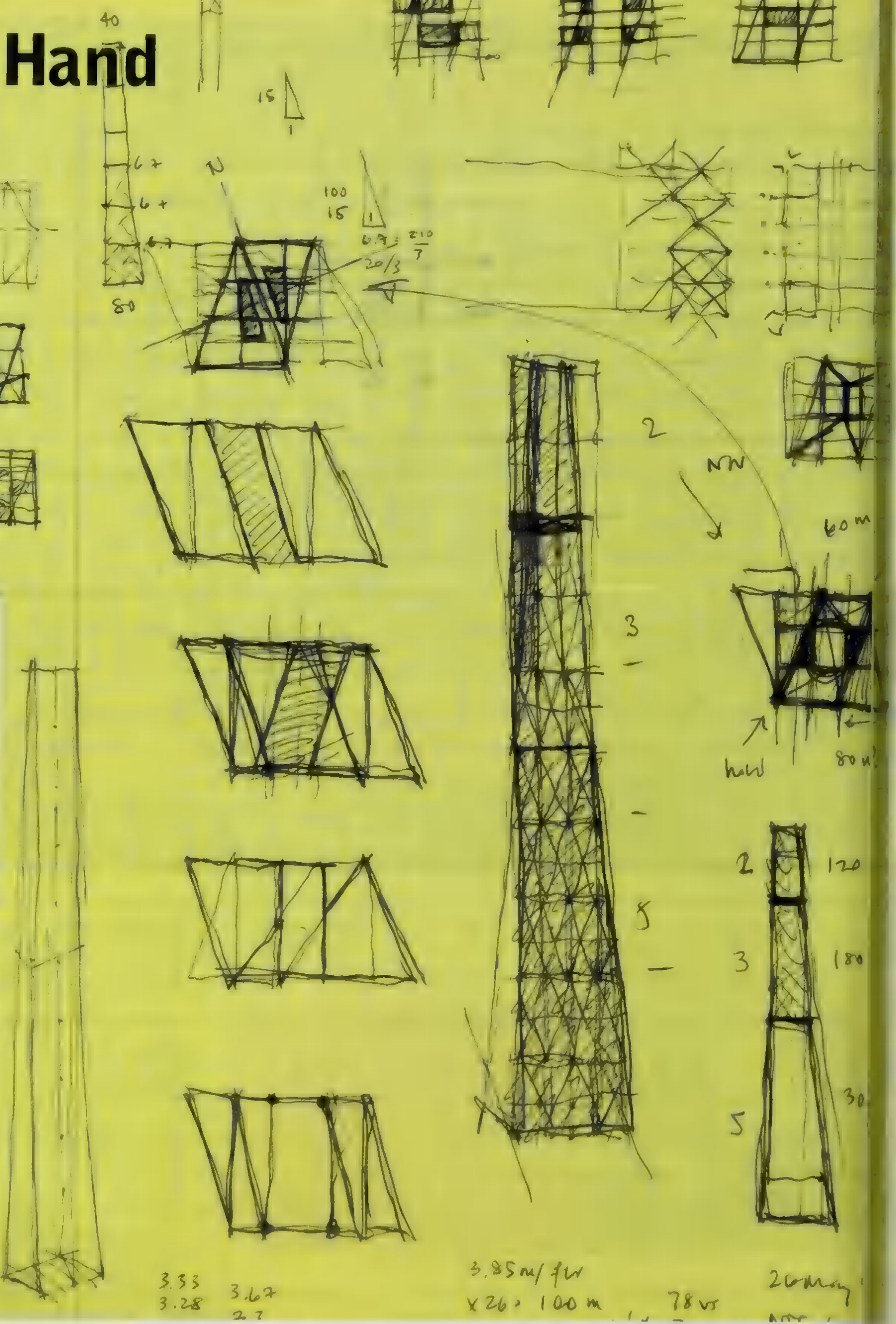

Freedom Tower at Ground Zero **(right), blue ball-point pen on yellow-ruled, 8½-by-11-inch note-board paper, 2003.** ***Slurry Wall*** **(above), colored and mechanical pencil on 5¼-by-8¼-inch sketchbook page, 2006.**

Guy Nordenson sketches to think

Guy Nordenson, a structural engineer who began his career drafting in the joint studio of R. Buckminster Fuller and Isamu Noguchi in the summer of 1976, established the New York office of Arup in 1987 and his own practice in 1997. After the World Trade Center (WTC) attacks of 9/11, he undertook structural inspections of some 400 buildings around the site and continued to provide his services with the various design deliberations that followed, including collaborating with Skidmore, Owings & Merrill on the scheme that eventually became the Freedom Tower. One of his original sketches, from 2003 (above right), now in the Museum of Modern Art's Architecture and Design collection, shows the concept for a tower that twists around a vertical core as it rises from its rhomboid site. More recently, his office, with engineers Simpson Gumpertz & Heger, designed a system of pilasters to provide support for the exposed portion of the existing slurry wall that will become part of the WTC Memorial Museum (above left). Nordenson, who always carries his sketchbook with him, says, "Drawing is the best way to trace and nudge a fledgling idea to the point where it can be tested. The drawing is the idea, where the hand, mind, and eye come together. Computer and physical models, words, and other tools are the instruments for testing and analysis, but not in my experience the generator of strong ideas." *Jane F. Kolleeny*

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